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

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CLSA CORE TEAM

Lead PI	Parminder Raina **(McMaster)**
Co-PI	Christina Wolfson **(McGill)** and Susan Kirkland **(Dalhousie)**
Key Senior Co-Investigators	Gerry Mugford **(Memorial)**, Hélène Payette **(Sherbrooke)**, Ron Postuma **(McGill)**, Larry Chambers and Vanessa Taler **(Ottawa)**, Harry Shannon, Cynthia Balion, Christopher Patterson, Lauren Griffith and Mark Oremus **(McMaster)**, Mary Thompson and Chang Bo **(Waterloo)**, Margaret Penning, Holly Tuokko, Debra Sheets **(Victoria)**, Verena Menec **(Manitoba)**, David Hogan **(Calgary)** , Max Cynader, Michael Hayden and Michael Kobor **(UBC)** and Andrew Wister **(SFU)**
Scientific Working Group	**See our website – www.clsa-elcv.ca**

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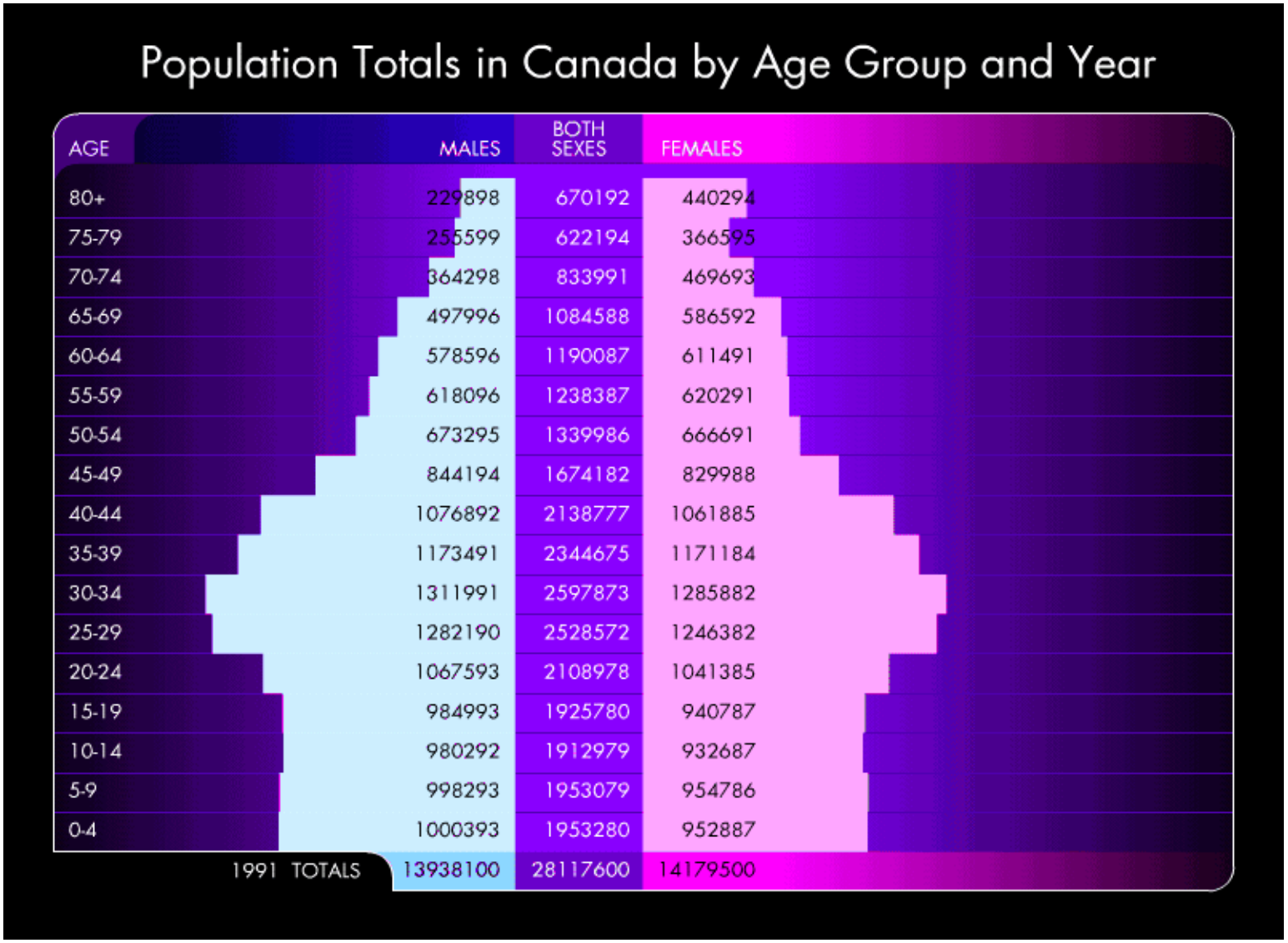
Context and Rationale

- 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



AGE	MALES	BOTH SEXES	FEMALES
80+	229898	670192	440294
75-79	255599	622194	366595
70-74	364298	833991	469693
65-69	497996	1084588	586592
60-64	578596	1190087	611491
55-59	618096	1238387	620291
50-54	673295	1339986	666691
45-49	844194	1674182	829988
40-44	1076892	2138777	1061885
35-39	1173491	2344675	1171184
30-34	1311991	2597873	1285882
25-29	1282190	2528572	1246382
20-24	1067593	2108978	1041385
15-19	984993	1925780	940787
10-14	980292	1912979	932687
5-9	998293	1953079	954786
0-4	1000393	1953280	952887
1991 TOTALS	13938100	28117600	14179500

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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

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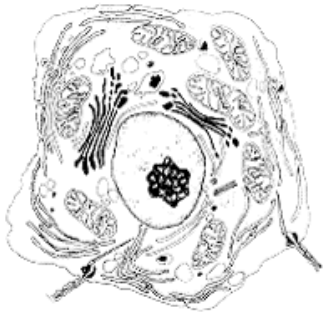
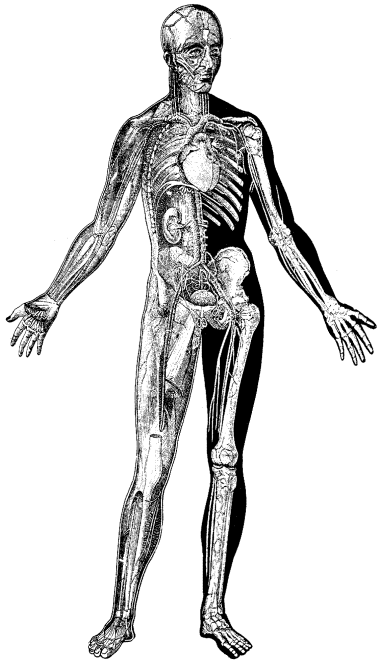
Context and Rationale

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





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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.

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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

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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

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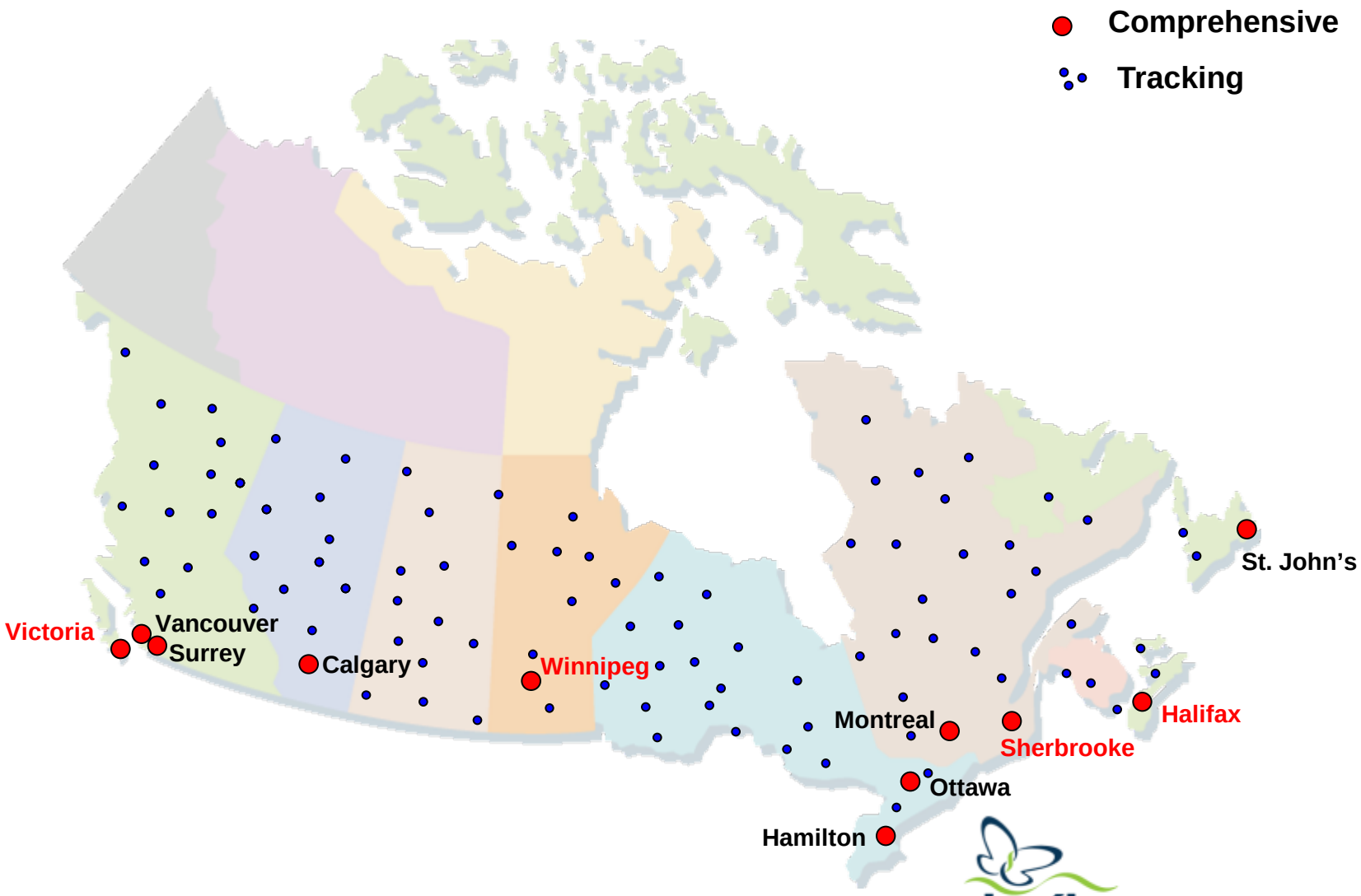
Participant Recruitment



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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

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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

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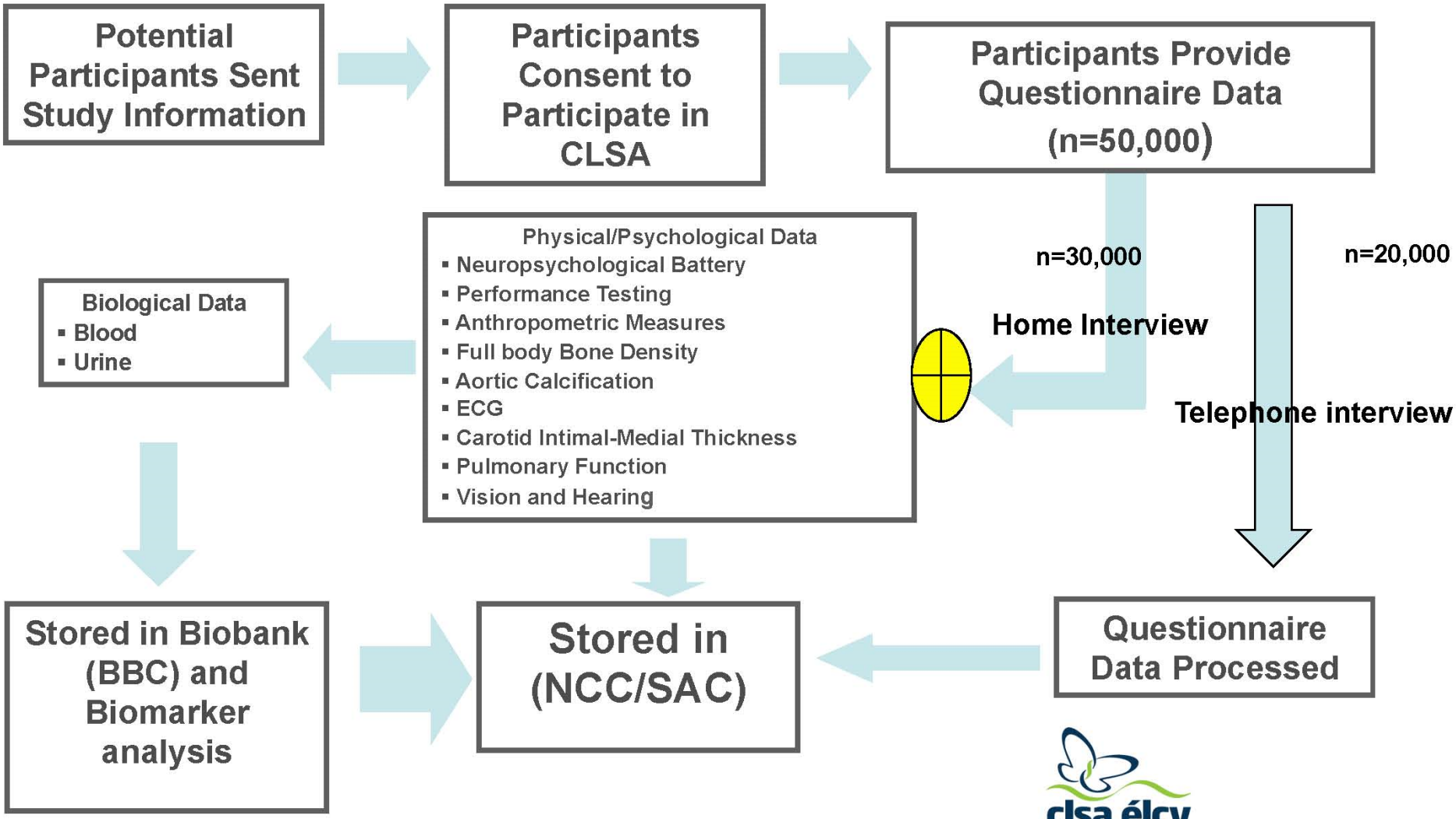
Data Collection Overview



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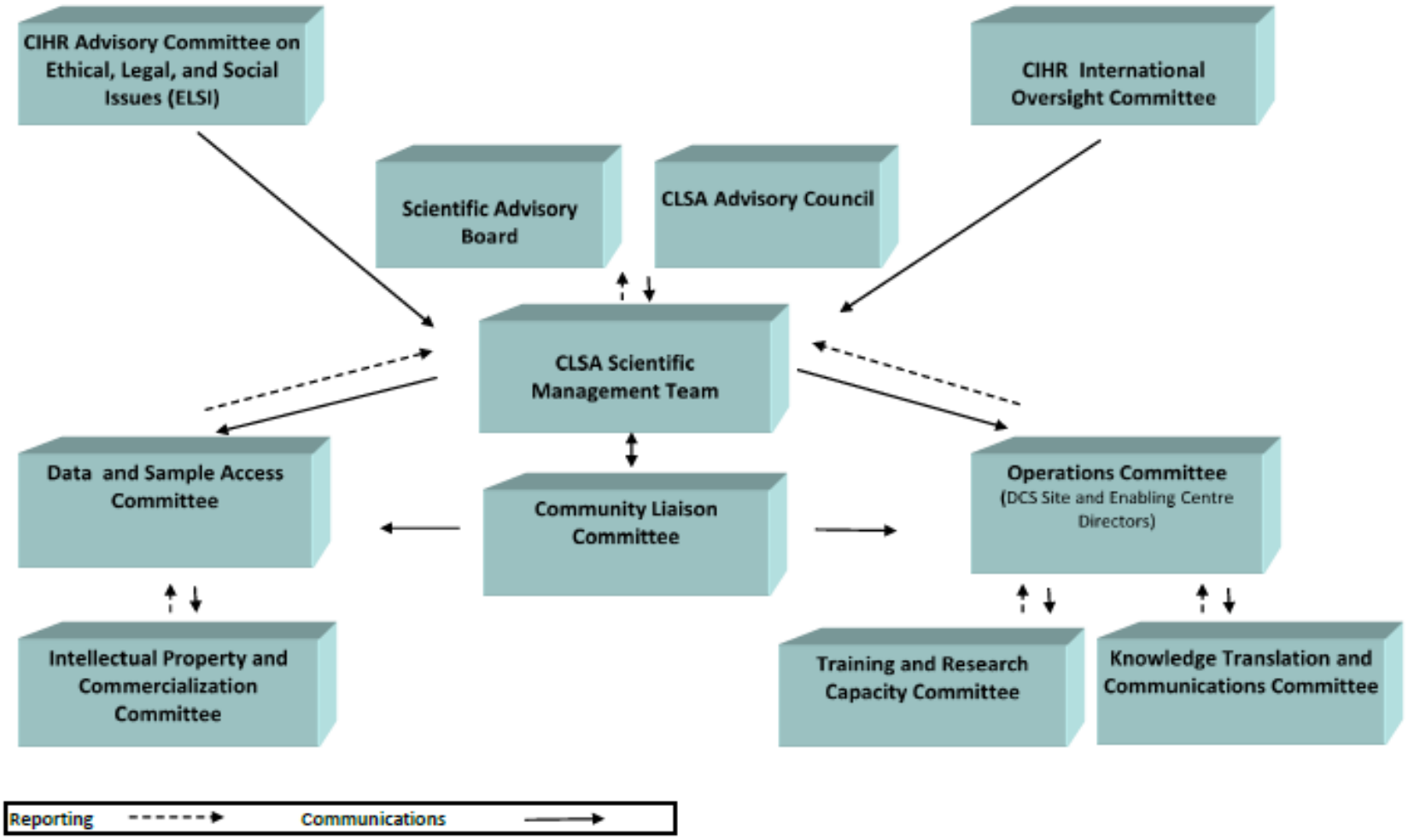
CLSA Governance Structure



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International Longitudinal Studies

	CLSA	HRS	ELSA	SHARE	CHARLS
Year First Wave Completed	2011/13	1992	2002	2004	2011-12
Number of Waves Completed	1	12	6	3	1
Years between Waves	3	2	2	2	2
Sampling Technique	Stratified Multistage Area Probability Sample	Stratified Multistage Area Probability Sample	Stratified Multistage Area Probability Sample	variable	Stratified Multistage Area Probability Sample
Sampling Frame	CCHS + RDD + Health Registry	Household Screening + Medicare Enrollments	Health Survey for England	variable	nk
Geographic Coverage	Canada	USA	England	11 European countries	China
Baseline Sample Size	50,000 (est) in two cohorts (~15,000 to date)	~20,000	12,099	31,115	17,000 (est)
Age Group	45-85	51+	50+	50+	45+
Data Collection Strategy	CATI + CAPI+ Clinical Assessment	CATI + CAPI	In-person Interview + Self-Admin Questionnaire	CAPI	CAPI
Measurement Domains	Demographics	Demographics	Demographics	Demographics	Demographics
	Social Networks & Support	Family Structure & Mobility	Social Participation	Social Networks/Support	Family Organization/Transfers
	Health and Functioning	Physical Health	Physical Health	Physical Health	Health Status/Functioning
	Mental Health		Psychosocial Health	Mental Health	
	Biomarkers	Biomarkers (as of 2006)	Biomedical/Genetic	Biomarkers (2010)	Biomarkers
	Cognitive Function	Cognitive Function	Cognitive Function	Cognitive Function	Cognitive Function
	Work and Retirement	Labour Force + Pensions	Work and Pensions	Work and Retirement	Work, Retirement, Pensions
	Income and Assets	Income and Assets	Income and Assets	Income & Assets	Income & Assets
	Built Environment	Housing	Housing	Housing	
	Social Participation		Volunteering	Performance	
	Caregiving & Care Receipt			Financial Transfers	
	Health Care Utilization	Health Care		Health Care	Health Care & Insurance
	Health Lifestyle Behaviours	Health Screening		Behavioural Risk	
				Activities & Expectations	

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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

CIHR IRSC
Canadian Institutes of Health Research
Instituts de recherche en santé du Canada

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CANADA FOUNDATION FOR INNOVATION

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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

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CIHR IRSC
Canadian Institutes of Health Research
Instituts de recherche en santé du Canada

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