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Canadian Health Measures Survey

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CHMS Goals

- **CHMS is the newest national health survey providing a profile of the health of Canadians based on direct physical measures.**
- **Physical measures tests, such as heart and lung health, weight and fitness, are conducted in a mobile clinic. Laboratory tests of blood and urine samples follow.**
- **Important health issues (obesity, environmental toxins, physical inactivity, undiagnosed disease) cannot be monitored without direct measures.**



The mobile clinic experience

Urine Collection



Anthropometry



Spirometry



Phlebotomy



Blood Pressure



More physical measures

Fitness Measures



Lab Measures

Oral Health

Activity Monitor





Survey parameters

- **Initial budget (with buy-ins) \$37 million over 6 yrs, now permanent funding for ongoing collection**
- **National estimates**
- **Atypical sample design (cost, logistics)**
- **24 months of data collection**
- **Direct measures completed in mobile clinic**
- **Cycle 1: 2007 to 2009, 5,500 sample, ages 6 to 79**
- **Cycle 2: 2009 to 2011, 5,700 sample, ages 3 to 79**



Analytical potential

- **46 questionnaire modules containing 722 questions**
- **Approximately 50 physical measures variables**
- **Over 120 biospecimen analytes**
- **About a dozen Environment Canada weather / pollution indicators**
- **Potential linkage to health records**



Current CHMS Biobank Protocol

- **Storage of blood and urine for future health studies: all consenting participants ages 3+**
- **Storage of DNA: participants ages 20+ with separate consent**
- **All participants retain their right to withdraw at any time**
- **National Microbiology Laboratory (NML) in Winnipeg selected as biorepository for indefinite storage**
- **Access controlled by Statistics Canada**
- **Fall 2010 availability to researchers**



Privacy/Ethics Influence

Storing biospecimens representative of the Canadian population for future study was a new initiative.

- **Health Canada's REB reviewed and approved the storage proposal separately.**
- **Blood draw volumes were limited for research purposes and for participant safety.**
- **There are competing uses for the blood, including DNA extraction.**
- **DNA storage was the major concern raised by the Office of the Privacy Commissioner of Canada (separate consent and a five-year review panel recommended).**

Years of consultation and review dictated a cautious approach and the American practice in NHANES of DNA storage for ages 20+ was adopted while gauging Canadians' acceptance.



Canadian Acceptance CHMS Experience 2007 to 2009

Tremendous response and support for biospecimen storage and data use in future health studies

- **94% of clinic participants aged 20+ agreed to DNA storage**
- **97% aged 6 to 79 agreed to blood and urine storage**
- **99.7% of all clinic participants agreed to record linkage**
- **96% of children re-contacted at age 14 for individual consent to continue storing their blood and urine are participating in the biobank**