

WellSpring

The Canadian Health Measures Survey

Introduction: Why Should We Give a Hoot about this Survey?



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Have you ever used height and weight growth charts in your practice? Or perhaps your pediatrician has used these charts to explain how your child compares to other children of a similar age and sex. If so, you were using information based on data collected in surveys using direct, or actual, measures of physical health and anthropometry (i.e., body measurements).

The problem is that very little of this work has been done in Canada, so most of our norms are based on data collected in the United States or Europe. The Canadian Health Measures Survey (CHMS) is a direct measures survey that will provide us with all sorts of information about the health of Canadians—information that we cannot obtain from self-report surveys.

In addition, the survey's data will help us to validate the self-report surveys. Ultimately, the information collected in the survey is important because it will allow for more accurate planning and targeting of programs and services.

Let me illustrate my points with an example. In Canada, we know little about the actual height and weight of our population. Most of the information we have on the weight status of the population comes from self-reported height and weight. The problem with this type of information is that, when asked, people are not always sure of their actual height and weight.

In a recent study published in the *Canadian Journal of Public Health*, MacLellan and colleagues (2004) report that approximately 30% of PEI adults are obese (BMI > 30). This data came from direct measures of height, weight, and waist circumference. The authors were alarmed by the findings because the most recently available self-reported data suggested that only 15% of PEI adults were obese. Thus, the problem of overweight and obesity in PEI is much worse than originally thought and requires immediate attention.

This is just one example of the advantages of using direct measures to evaluate a population's health. You may think of other examples after reading Dr. Mark Tremblay's description of the survey on the following pages.

"In late October 2004, Statistics Canada will conduct a pre-test of the survey in Calgary Alberta."

—Dr. Mark Tremblay



Background to the Canadian Health Measures Survey

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How Have We Measured the Health of Canadians in the Past?

Canadians' health has been monitored mainly through questionnaires or interviews where people answer questions or have someone else answer for them. The validity of self-reported information is limited for several reasons:

- inherent limitations in the questionnaire;
- the extent of participants' understanding of the questions;
- participants' inability to accurately recall information;
- participants' inclination to respond in a preferential or prejudiced way based on their knowledge and interpretation of the questions.

Despite these limitations, previous health surveys have been routinely used for evidence-based decision-making simply because the data represent the best information available.

Using Direct Physical Measurements to Monitor Health

Policy-makers, researchers, and health professionals require national, comprehensive, and accurate health data to help them plan health care and prevention services to meet the needs of Canadians. Direct physical measurements would provide more accurate data about the current health of Canadians, resulting in better information to inform policy decisions.

Direct measures of anthropometry (i.e., body measurements), fitness and physical activity, and biological specimens (blood, urine, hair, nails, saliva, etc.) provide information unavailable through questionnaires or other data sources. Direct measures surveys have not been routinely used in Canada largely because of the high cost of data collection.

Many other countries have conducted national surveys of direct physical measures that have led to important health findings. For example, the US National Health and Nutrition Examination Survey (National Center for Health Statistics, 2002) provided the data needed to develop standard growth charts for

for children. This direct measures survey also confirmed the link between high cholesterol and heart disease in the 1960s. In addition, the same survey gave the first evidence that Americans had too much lead in their blood. This finding pushed the government to phase out lead as an additive in gasoline, resulting in a dramatic lowering of blood lead levels.

In Australia, a similar direct measures survey conducted between 1999 and 2001 (Dunstan et al., 2002) found that for every known case of diabetes, there was another undiagnosed case. The survey also revealed that nearly 1 million Australians over the age of 25 have diabetes. The data collected from this survey will be important for national and regional public-health education, health-promotion programs, and health-care planning.

In New Zealand, the 1996–1997 health and nutrition surveys (New Zealand Ministry of Health, 1999) identified three key nutrition problems in the population: obesity, food security, and calcium inadequacy. These problems are all now policy priorities within the New Zealand Ministry of Health.

All of these improvements resulted from the information gathered from directly measuring physical characteristics.

"Statistics Canada, in partnership with Health Canada, is planning to begin the Canadian Health Measures Survey in 2006. This survey aims to obtain direct measurements of chronic disease, infectious disease, environmental toxin exposure, and physical activity and fitness levels from a nationally representative sample of Canadians."

Mark Tremblay

Content of the Canadian Health Measures Survey

In addition to providing more robust assessments of disease and risk factor prevalence, the survey will measure many important indicators that cannot be captured through self-reporting (e.g., blood lipid profile, fasting glucose, and blood lead).

Physical measures being considered for the survey include the following:

- anthropometry (height, weight, waist circumference, skinfolds, bioelectric impedance analysis (a way of measuring body fat));
- cardiovascular fitness (blood pressure, modified Canadian Aerobic Fitness Test);

- musculoskeletal fitness (hand-grip strength, back health);
- physical activity (accelerometry);
- lung health (spirometry).

Blood analyses being considered include

- complete blood count (CBC);
- blood chemistry panel;
- diabetes (e.g., fasting glucose, oral glucose tolerance test, glycosylated hemoglobin);
- cardiovascular health (e.g., cholesterol levels, homocysteine, fibrinogen, C-reactive protein);
- nutritional status (e.g., folate, vitamin B12, vitamin D, iron, ferritin, calcium);
- environmental exposures (e.g., lead, mercury, cadmium, manganese, organochlorine pesticides, non-coplaner PCBs);
- infectious disease (e.g., hepatitis (A, B, C), rubella, varicella, measles, chlamydia, herpes simplex 2).

Urine analyses being considered include

- nutritional status (e.g., iodine);
- environmental exposures (e.g., cotinine [second-hand smoke], herbicides, organophosphate pesticides);
- microalbumin (assessing renal function and metabolic syndrome);
- creatinine (used to standardize urine measures).

In addition, a *household questionnaire* will gather information related to

- lifestyle behaviours (e.g., nutrition, immunization history, smoking, activity levels);
- health history;
- current health status;
- demographic and socio-economic variables.

It is estimated that the survey will obtain comprehensive direct health measurements on a nationally representative sample of 6,000 to 8,000 Canadians aged between the ages of six and 79.

The survey is administered under the authority of the Statistics Act and therefore all respondent information from the survey will remain strictly confidential unless informed consent is received to share the data.

Pre-Test Survey in Calgary, Alberta

In late October 2004, Statistics Canada will conduct a survey pre-test in Calgary. This pre-test aims to

- to ascertain Canadians' willingness to participate in the survey;
- to evaluate the logistics and costs of the project;
- to assess non-response patterns and reasons for non-response;
- to look at ways to improve the survey;
- to measure how long it takes to fill in the survey;
- to determine how long it takes clinical staff to complete an assessment.

We randomly selected 740 addresses in the Calgary region for participation in the pre-test. We then notified these people of their selection and gave them background information on the survey.

A Statistics Canada interviewer will arrange the health interview. We anticipate that 25% of the sample will be ineligible for various reasons. From the remaining sample, we estimate that 90% will agree to the health interview.

Participants aged 14+ will complete the interview on their own. Children under 14 will have their parent or guardian help them. We will provide each respondent with a comprehensive package outlining all of the procedures involved in the direct measures part of the survey. The interviewer will also give respondents consent forms and pre-testing guidelines. We anticipate that 60% of respondents will participate in the clinic part of the survey.

The pre-test will employ 10 full-time interviewers and eight measurement team staff (one manager, two administrative assistants, three professional fitness and lifestyle consultants, and two phlebotomists). The pre-test is scheduled to occur between October 2 and December 5, 2004.

Respondents who attend the clinic will go through the following steps:

- identity verification and consent;
- pre-test screening;
- blood pressure testing;
- specimen sampling (blood and urine);
- anthropometry testing;

- spirometry testing;
- second blood draw (fasting morning participants only for oral glucose tolerance test);
- fitness testing;
- accelerometer use and mail-back instructions;
- preliminary report of on-site results (except specimen analyses).

Approximately six to eight weeks later, all respondents will receive their laboratory results (these will include suggestions for medical follow-up for any problematic results). Respondents will also be notified about any urgent conditions.

Next Steps

A comprehensive communications strategy is planned for the pre-test and main survey. This strategy includes extensive consultations with Canadians through focus groups, a comprehensive set of respondent relations materials, proactive interactions with privacy commissioners and research ethics boards, a coordinated media strategy, regular communication with stakeholders, and a policy of open and transparent methodologies.

The survey process and procedures will be revised based on our experience during the pre-test. We plan another pilot test for early January 2006, and the main survey is scheduled to take place over 12 months, from fall 2006 to fall 2007, with data release approximately one year later.

Future Value of the Canadian Health Measures Survey

The Canadian Health Measures Survey will attempt to measure many important surveillance indicators that cannot be captured through self-reporting. This valuable information will help determine the extent of health problems and prevention activities associated with such major health concerns as diabetes, body weight, hypertension, cardiovascular health, environmental pollutants, and some infectious diseases.

Information from the survey will also help ascertain the relationships among disease risk factors, health-protection practices, and health status based on direct measures. In addition, the survey will provide a platform from which to explore emerging public-health issues, investigate new measurement technologies, and perform subsequent direct measures surveys.

To receive the survey's quarterly newsletter, please e-mail us at CHMS-ECMS@statcan.ca to add your name to our distribution list.

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Mission Statement of the Alberta Centre for Active Living

Working with practitioners, organizations, and communities to improve the health and quality of life of Albertans through physical activity.

IF YOU HAVE ANY SUGGESTIONS OR QUESTIONS, WE'D LIKE TO HEAR FROM YOU.

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