

Summary of information for preliminary discussion of obesity surveillance in BC's First Nations communities

Prepared by Tracey Galloway, PhD, International Polar Year Research Associate in Nutritional Anthropology, Centre for Indigenous Peoples' Nutrition and Environment, McGill University. Email: tracey.galloway@mcgill.ca

What is currently known about obesity in BC First Nations communities?

From national surveys

The First Nations Regional Longitudinal Health Survey (RHS) Phase I 2002/03 (Assembly of First Nations 2007) (reported data)

Data collection was conducted between August 2002 and November 2003 in First Nations communities across Canada. The 2002/03 survey sample was designed to represent the First Nations population living in First Nations communities in all provinces and territories except Nunavut. Overall, 238 communities were included and 5.9% of the target population was surveyed. The sampling rate was 4.9%; among youth, 10.0% and for children, 6.0%. The higher proportions of children and youth allow for statistical precision similar to the level possible with the adult data.

A total of 22,602 surveys were administered. Three age-specific questionnaires were completed for: 10,962 adults, 18 years of age and over (by interview); 4,983 youth, 12 to 17 years of age (self-administered); and 6,657 children, 0 to 11 years of age (the parent or guardian responded). In BC 4 Geographic Regions were represented: Coastal Region, Northern Interior, Southern Interior, and Vancouver Island, with a total of people from 39 communities representing 3.9% of the population of BC.

However, 37.0% of First Nations adults are considered overweight. An additional 31.2% are deemed obese, and a further 4.8% are considered morbidly obese, which entails an extremely high risk level for developing health problems. In comparison, 49% of Canadians in general (age 20–64) are considered to be normal weight, 33% are considered overweight and 15% are considered obese.

Overall, First Nations men are more likely than women to be overweight (41.8% for men compared to 31.1% for women). This is particularly true for adults aged 18–29 (40.6% for men compared to 24.4% for women) and those 40–49 years of age (48.5% for men compared to 32.2% for women). However, as shown in Figure 4, women are more likely than men to be obese (28.6% for men compared to 34.3% for women) and morbidly obese (3.2% for men compared to 6.8% for women). Generally speaking, younger adults (18 to 29 years of age) are less likely than adults older than 30 to be obese or morbidly obese.

Adults who are obese or morbidly obese are more likely than those of normal weight to report one or more chronic health conditions (71.1% of morbidly obese adults and 65.7% of obese adults, compared to 43.1% of those of acceptable weight). This pattern is most apparent for musculoskeletal, respiratory and cardiovascular conditions.

According to this classification, 41.5% of children are considered to be normal or under weight. However, 22.3% of First Nations children are considered overweight. Moreover, 36.2% are deemed obese. No differences were apparent in body mass index between Aboriginal boys and girls. Older children (9-11 years) are twice as likely to be overweight (28.8%) compared to younger children (3-5 years) (13.1%); however, the inverse relationship is true for obesity (48.7% for 3-5 year olds compared to 26.4% for 9-11 year olds).

According to the Regional Health Survey, children of varying body weights hold similar nutritional or dietary practice patterns. However, children who are overweight (7.9%) or obese (8.0%) are reportedly more likely than normal or underweight children (2.9%) to participate in physical activities less than once a week.

Parents of obese children are more likely than parents of normal or underweight children to say their children are only in good health (35.6% versus 15.1% respectively). Children who are obese are reportedly less likely (13.5%) than normal or underweight children (25.1%) to be considered above average in their grade during the year compared to their peers. Children living in small communities (<300 residents) are less likely than those in communities of more than 1,500 residents to be classified as obese (25.7% in small communities versus 44.2% in large communities).

Canadian Community Health Survey (CCHS) (Katzmarzyk 2008) (measured data)

The sample included 24,279 Canadians (1,176 Aboriginals, 23,103 non-Aboriginals) aged 2–64 years.

The prevalence of obesity in adults was 22.9% (men: 22.9%; women: 22.9%), and the prevalence was higher among Aboriginals (37.8%) compared to non-Aboriginals (22.6%). The prevalence of obesity in children and youth was 8.2% (boys: 9.2%; girls: 7.2%), and the prevalence was higher among Aboriginals (15.8%) compared to non-Aboriginals (8.0%). In both youth and adults, the odds for obesity were higher among Aboriginals (youth: OR = 2.3 (95% CI: 1.4–3.8); adults: OR = 2.4 (95% CI: 1.6–3.6)) after adjustment for a number of covariates. There were no ethnic differences in the prevalence of physical inactivity; however, physical inactivity was a predictor of obesity in both the Aboriginal and non-Aboriginal samples.

Excerpts from preliminary scan of provincial and local studies

Foulds et al 2011

From January 2007 to February 2010, 759 Aboriginal adults, 18+ years, from 22 locations around the Canadian province of British Columbia were measured for obesity and AO. Participants represented a range of ages, from 18 to 77 years. At each location, individuals residing both on and off local reserves in nearby towns and cities were tested. Ethics approval was obtained through the Clinical Research Ethics Board at the University of British Columbia and written informed consent was obtained from each participant prior to data collection. All participants were recruited through local First Nations band offices and/or Native Friendship Centres. Testing was conducted within the local Aboriginal communities with the assistance of local Aboriginal healthcare professionals and leaders. As in the past, our research was participatory in nature with Aboriginal community leaders playing important central roles in the design and implementation of the study.

Nearly half of this population was observed to be obese with a further third presenting BMI values in the overweight (25.0–29.9 kg m⁻² range) according to WHO classifications. Therefore, approximately 78% of the population were either overweight or obese. The prevalence of AO was also high, with two-thirds determined to be centrally obese at the normal cut-off. Overall, more than 84% of participants sampled were determined to be abdominally obese at the lower AO cut-off range.

Younger individuals presented with lower prevalence of obesity and AO, with a general increase in both obesity and AO with age. These trends were observed for both male and female participants. Peak obesity and AO prevalence rates were observed among both male and female participants at age 60 years. Mean BMI and WC values were also observed to increase with age, demonstrating similar peak values in the oldest age group.

Wahi et al 2009

Children who were six to 18 years of age (16 girls and 14 boys) and living in the community of Hartley Bay, BC, participated in the study. Five children (17%; two boys and three girls) were overweight and 10 children (33%; four boys and six girls) were obese. The prevalence of overweight and obesity was 50%. The prevalence of overweight or obesity in girls was 56% (nine of 16), and the prevalence of overweight or obesity in boys was 43% (six of 14).

Zorzi et al 2009

We have a long-standing relationship with the Tsimshian Nation, which includes the communities of Hartley Bay (Gitga'at), Kitkatla (Gitkxaahla) and Port Simpson (Lax Kw'alaams). This relationship was established through a community-driven cooperative program, "Brighter Smiles," initially developed for the reduction of dental caries and well-child surveillance. Following identification by the Brighter Smiles team of a child with asymptomatic T2D, the 3 communities requested diabetes screening for all of their youth. The objective of this screening initiative was to determine the prevalence of obesity, abnormal glucose metabolism and the components of MetS among Tsimshian youth between the ages of 6 and 18 years, in order to provide the requisite information to work collaboratively to develop sustainable prevention and treatment programs.

A medical history, anthropometric measurements and an oral glucose tolerance test were performed in 192 youth (97 boys and 95 girls) aged 6–18 years. Overall, 45% (95% CI 38.3–52.4) of participants had a BMI at the 85th percentile or higher: 19% of participants were overweight (17.5% of boys and 21.1% of girls) and 26% of participants were obese (23.7% of boys and 28.4% of girls).

Self et al 2005

This study is a retrospective chart review of all people attending the Bella Coola Medical Clinic, and residing in the Bella Coola Valley. More than 92% of clinic charts had a recent measurement of weight and 65% of clinic charts had height measured; accordingly, we were able to calculate the BMI on 65% of the clinic population. Over 50% of the adults residing in the Bella Coola Valley are considered overweight (BMI > 27, the Health Canada definition) and only 25% have a BMI within an acceptable range (20.0 to 24.9). Proportionately more Aboriginal people are overweight (65%) than non-Aboriginal people (47%); men and women were similarly overweight (56% and 53%, respectively); and proportionately more people were overweight with increased age. The prevalence of being overweight in people aged 65 years and older is 66%.

Daniel et al 1999

Persons with established (physician-diagnosed) diabetes were identified before screening by using records maintained by the local Medical Services Branch unit. Diabetic individuals and their first- and second-degree relatives were asked to participate in a diabetes diagnostic and risk factor screening initiative.

Age seems to confound, rather than modify, BMI-specific associations between WHR and glycemic status. WHR was not related in this study to poor glycemic status at BMIs ≥ 30 . This is not to suggest that a high BMI is not related to health risk, but that WHR is a poor indicator of the risks associated with a high BMI. We observed strong associations between increasing BMI and worsening glycemic status.

Existing Obesity Surveillance Programs in Canada*

*Note: In May 2011, Lydia Drasic and Andrew Hazelwood, BC Ministry of Health Services, presented the results of an environmental scan of the province of BC at the 2nd National Obesity Summit. Similar scans were also undertaken in Quebec and Ontario. Results have not yet been made widely available.

Ontario Childhood Healthy Weights Surveillance System (OCHWS)

A pilot approach to measuring the heights and weights of children in Ontario has been developed. It is a school-based approach that ensures the population monitored will reflect the diversity of Ontario's population. Testing of this approach started in spring 2010 in the Eastern Ontario and the Grey Bruce health units and included the Catholic District School Board of Eastern Ontario, the Bluewater District School Board and the Bruce Grey Catholic District School Board. Results from the first pilot phase will inform further development of childhood healthy weight surveillance in Ontario.

A draft guidance document for monitoring heights and weights of Ontario's children has been developed. It outlines an approach aimed at minimizing disruption to existing processes and limiting additional burdens to public health units and schools. Consideration has also been given to ethical approaches that minimize unintended negative consequences for children. The approach has been developed based on experience in Ontario's public health units, experience in other similar jurisdictions (e.g., the United Kingdom) and the expert advice of OCHWSSC.

The guidance document includes the following recommendations for monitoring the heights and weights of Ontario's children:

- Implement surveillance through publicly-funded schools
- Make Grade 2 students the focus of data collection
- Collect height, weight and relevant demographics only
- Integrate with Ontario's existing oral health programming, which already targets Grade 2 students (Note: Planning for an informative webinar to oral health teams is underway).

Governance models, roles and responsibilities continue to be explored. For first pilot phase, the Association of Local Public Health Agencies (aLPHa) is responsible for managing the project including support for the public health units involved in the implementation. The Ontario Agency for Health Protection and Promotion (OAHPP) is responsible for data transfer, analysis, reporting and archiving. Funding for the first pilot phase has been provided by the Ministry of Health Promotion (MHP). An "Initial Pilot Group" with representatives from local public health units has been established to oversee the implementation of the first pilot phase.

Alberta feasibility study (Plotnikoff et al 2010)

To gain further insight into the complex nature of childhood obesity, the Capital Health Region in Edmonton, Alberta, Canada, collaborated with the University of Alberta to initiate a research study addressing childhood obesity from a regional perspective. Initially the project involved the development of a pediatric ecological surveillance prototype whose objective was to address obesity prevention and management among children and youth living in the Capital Health Region. From this emerged the Child Health Ecological Surveillance System (CHESS), which incorporates a multilevel (i.e. individual and environmental) ecological framework that organizes and captures the important constructs and a range of outcomes (i.e. systems/services, research, knowledge and health) driven by existing infrastructure (e.g. resources), leadership (i.e. policy practice and scientific leadership) and the will to act. The various outcomes are then fed back to local decision makers to modify the surveillance system as needed and to identify knowledge gaps and refine metrics, theory and interventions. The ongoing collection of local data on core measures at multiple levels will provide ongoing regional prevalence data, allow for the testing of theories related to secular trends in childhood obesity, and guide the development and evaluation

Not surprisingly, findings show that organizations and their representatives from the three communities are mindful of the epidemic nature of childhood obesity. However, despite cogent personal will to address

childhood obesity, there are overpowering infrastructure barriers, such as data in different forms, legislative barriers and organizations with funded mandates for which they are accountable, leaving scant excess capacity to address this public health issue.

Based on the information collected, there is not yet sufficient and/or suitable data to populate an ecological model such as CHESS. Thus, there continues to be a need to collect data specific to childhood obesity, at all levels of the ecological framework. There exist, however, pockets of information that serve as a solid platform to create a useful surveillance system. Two key conclusions can be drawn from this feasibility assessment of CHESS within the context of childhood obesity:

1) Disparate data, in a variety of formats, present both technical and accessibility challenges to the application of an ecological model. Essential to the feasible application and utilization of an ecological framework is the availability of relevant data in a format easy to capture and transfer. Our study suggests that cross-sectional data regarding the general health of children and youth are being collected by a variety of organizations, but not data that specifically relates to childhood obesity (for example, there are no data on physical activity and nutrition). While some degree of information on physical activity and nutrition exists at the organizational, community and macroeconomic policy levels, data at social levels are either non-existent, cannot be shared due to differing data formats or are withheld due to confidentiality concerns. Moreover, longitudinal data at all levels are lacking. These data limitations make effective assessments of interventions and policy changes problematic.

In terms of physical activity indicators, municipalities (Parks, Recreation, Community Services and Planning Departments) have general information concerning parks and trail usage, program statistics, current resource distribution as well as the types of resources necessary to facilitate or foster physical activity in each community. Comparable nutrition specific information appears to be non-existent. Based on the evidence collected in this feasibility study, most available data are stored in electronic mediums; however, these data may not be congruent in terms of measurement, collection and synthesis appropriate for populating the ecological model. Although information access was acknowledged as a technical challenge, participants generally agreed to share data with others.

2) Broad-based awareness and interest regarding child obesity by a wide range of groups and organizations could facilitate establishing an effective coalition to address the issue over the long term.

Nova Scotia

In 2005 a multidisciplinary team organized the conference 'Taking action against obesity in Nova Scotia' (<http://www.cdha.nshealth.ca/default.aspx?page=DocumentRender&doc.id=254>).

Related model

Active Healthy Kids Canada 2009 Report Card, Principal investigator: Dr. Mark Tremblay

Active Healthy Kids Canada's Report Card on Physical Activity for Children and Youth ("Report Card") is a research-based communications and advocacy piece designed to provide insight into Canada's "state of the nation" each year on how, as a country, we are being responsible in providing physical activity opportunities for children and youth. The development of each annual Report Card is largely supported by the work of a Research Work Group. The Research Work Group includes an interdisciplinary selection of experts that are responsible for identifying and ranking Report Card indicators based on available data, research and key issue areas that can be graded nationally. As part of the development process the Research Work Group also accesses additional experts/researchers to fill issue specific gaps as applicable. Once gathered, the raw report card data are organized into a detailed version (long form) of the Report Card and condensed to produce a summary (short form) Report Card. The Healthy Active Living and Obesity (HALO) Research Group at the Children's Hospital of Eastern Ontario (CHEO) Research Institute has entered into a strategic partnership agreement whereby the HALO research group serves as the knowledge and research engine for Active Healthy Kids Canada, including the writing of the

Report Card. HALO leads the development, coordination, data gathering, evidence synthesis and expert response related to the Report Card preparation and release.

Status: The project began August 1, 2008 and the report card was released in June 2009. A provincial supplement was also prepared for Saskatchewan and was released in September, 2009.

Selected issues

- governance model
- ethical considerations related to research with human subjects, children, and follow-up for persons identified as at risk of negative health outcomes
- sampling and recruitment, target ages
- selection of metrics: direct and indirect measures of adiposity and their relationship to other health indicators in Aboriginal populations
- selection of reference values relevant to Aboriginal populations
- data storage and access
- reporting
- sustainable funding structure

Expertise

Janice Linton MLS, Aboriginal Health Science Librarian, University of Manitoba. Email: janice_linton@umanitoba.ca

Dr Constadina Panagiotopoulos, Department of Pediatrics, Endocrinology & Diabetes Unit, University of British Columbia, BC Children's Hospital, 4480 Oak Street, ACB K4-213, Vancouver, British Columbia V6H 3V4. Email: dpanagiotopoulos@cw.bc.ca

Dr. RC Plotnikoff, Centre for Health Promotion Studies, School of Public Health, and Faculty of Physical Education and Recreation, University of Alberta, Edmonton, Alberta, Canada AND School of Education, University of Newcastle, Callaghan, NSW Australia 2308. E-mail: ron.plotnikoff@newcastle.edu.au

Dr. Mark Tremblay, Director of Healthy Active Living and Obesity Research (HALO) at the Children's Hospital of Eastern Ontario Research Institute and Professor of Pediatrics in the Faculty of Medicine, University of Ottawa. Email: mtremblay@cheo.on.ca

Dr. D Warburton, Cardiovascular Physiology and Rehabilitation Laboratory, University of British Columbia, 6108 Thunderbird Boulevard, Vancouver BC V6T 1Z3. E-mail: darrenwb@interchange.ubc.ca

Dr. Noreen Willows, Department of Agricultural, Food and Nutritional Science, University of Alberta, 3-16 Agriculture/Forestry Ctr, Edmonton, AB T6G 2P5. Email: noreen.willows@ualberta.ca

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