



## POSITION PAPER

### **Addressing Childhood Obesity Through Expansion of the Ontario Student Nutrition Program (SNP)**

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#### **Background**

##### ***The Childhood Obesity Epidemic***

In 2011, approximately one third of children in Ontario were overweight and obese, defined as having a body-mass index (BMI) of 25 or greater (Public Health Ontario, 2013). This figure is the latest in a rising obesity epidemic across Canada and the world. Over the past 25 years, the number of overweight Canadian youth aged 12-17 doubled, while the incidence of obesity tripled (Public Health Ontario, 2013). Childhood overweight and obesity are detrimental to the child's immediate and long-term health. Children who are overweight and obese during childhood and adolescence are at significantly greater risk for developing serious health conditions previously seen almost exclusively in adults, including high cholesterol, high blood pressure, Type 2 diabetes, sleep apnea and joint pain (Public Health Agency of Canada, 2012).

Children affected by these conditions often develop multiple comorbidities, including coronary artery disease, stroke, and osteoarthritis (Public Health Ontario, 2013). Beyond these physical risk factors, being overweight and obese predispose children to psychosocial risks: affected children are often the victims of relational bullying (i.e. social exclusion and group marginalization), and are more likely to report low self-

esteem, body image issues and increasingly, depression (Childhood Obesity Foundation, n.d.). Furthermore, overweight and obese children are more likely than their peers to become overweight or obese adults: 83% of overweight children remain overweight or obese throughout their lifetime, with the debilitating impacts of obesity persisting into adulthood (Caprio et. al, 2008). If these patterns persist, today's youth may be the first generation in Canadian history to have a shorter lifespan than their parents, due to the risk of developing weight-related illnesses such as high blood pressure, heart disease and type 2 diabetes (The Heart and Stroke Foundation, 2008).

### ***Causes of Childhood Obesity***

Causes of childhood overweight and obesity are complex and multifactorial, and have been associated with behavioural, social, environmental and genetic risk factors at the individual, family, community and societal levels (Public Health Ontario, 2013). While some of these risk factors, including genetics, are non-modifiable, many can be attenuated through modifications in lifestyle and behaviours. These modifiable risk factors include consumption of sugar-sweetened beverages, physical inactivity and inadequate sleep. Breakfast consumption, in particular, has been identified as protective against obesity (Public Health Ontario, 2013).

Childhood overweight or obesity also occurs disproportionately in lower-income households; 35% of children living in the poorest Canadian neighborhoods are obese, compared to 24% of those in higher-income neighborhoods (Paul-Sen Gupta, de Wit, McKeown, 2007). These socioeconomically vulnerable households often have limited time available to prepare healthy, nutritious meals, a decreased ability to access a range of healthy foods due to limitations in money, transportation and time. This often leaves them with no choice but to substitute healthy foods with processed or fast foods, which are calorie dense and have minimal nutritional benefit (Polyani et al., 2014).

### **Problem Description**

#### ***Early Childhood Intervention***

The health and economic burdens of childhood obesity are extremely high at the individual, community and population level. Immediate action is needed to avoid long-term negative impacts (Registered Nurses Association of Ontario, 2014). Early childhood development is increasingly recognized as an important determinant of health, and most children will learn and sustain the nutrition habits they experience in childhood into adulthood (Muthuswamy, 2012). Skipping meals leads to a higher incidence of child and adolescent overweight and obesity and diet-related illnesses, while regularly eating breakfast markedly improves weight control, knowledge retention, school attendance, and behavioral outcomes (Muthuswamy, 2012). Unfortunately, 40% of all children in Toronto alone go to school without breakfast every day.

Additionally, only 14% of children in Ontario report eating the recommended daily serving of fruits and vegetables, instead consuming processed calorie-dense convenience

foods (Sustain Ontario, 2010). However, when given the option of access to fruits and vegetables, children in Ontario most often chose the healthier foods available to them (Sustain Ontario, 2010). Thus, children in Ontario poor eating habits may be amenable to interventions that seek to nurture regular, positive eating habits.

### ***School-Based Nutrition Intervention***

Schools have been identified by many international organizations as a pivotal environment for promoting healthy weights and cultivating healthy habits (WHO, n.d.-a; UNESCO, 1998; IUHPE, n.d.). Children not only spend a large portion of their time at school, but are also surrounded and influenced by their peer role models. School nutrition programs provide a unique opportunity for children to share healthy eating experiences together (Salanave et al., 2009).

A school-based nutrition program can thus positively impact a child's nutritional habits by: improving access to food resources and well-balanced meals, exposing children to a variety of foods from all of the food groups, promoting their exposure to locally produced, healthy food products, and ultimately encouraging them to embrace positive and long-term healthy behaviours. Further, schools are also an appropriate environment to supplement nutrition programs with health promotion education to further promote lifelong healthy eating habits. There are many factors that determine the quality of health promotion programs in schools, but central to these is training received by teachers and volunteers who are involved in the implementation of the programs (Miglioretti, Velasco, Celata & Vecchio, 2012). Teachers who receive health promotion training tend to be more active in expanding health promotion initiatives and approach health education more comprehensively (Jourdan, Samdal, Diagne & Carvalho, 2008). Thus school-based nutrition programs with health promotion education from adequately trained providers/teachers can mitigate many of the aforementioned causes of childhood obesity.

### ***School Nutrition Programs in Other Countries***

Many developed countries consider school-based nutrition programs to be effective public health interventions that address food insecurity issues, which are major contributors to childhood obesity. Among the G8 nations, Canada is the only country that lacks a national school-based meal program. (Howard & Edge, 2013; Moffat & Thrasher, 2014).

For instance, France and Japan both have successful national meal programs at schools that make nutritional lunch accessible to all students. Both countries saw their childhood obesity rates rise in recent years, and passed national legislation to improve their school lunch programs in response. Participants of school lunch programs in France and Japan unanimously agreed that school meals are essential ways of educating children about food literacy (Moffat & Thrasher, 2014). In France, it was found that childhood obesity prevalence in seven to nine year olds decreased in the years since the school lunch program was established. Children who participated in the national school lunch program also had less sedentary behavior and higher dietary diversity (Salanave et al., 2009).

## **Current Status**

Since 2005, the Ministry of Children and Youth Services have been partially funding the Ontario Student Nutrition Program (SNP), establishing 14 regional oversight agencies across the province (Sustain Ontario, 2010). These agencies are responsible for administering the network of local Student Nutrition Programs (SNPs), which provide healthy breakfast and/or snacks to students at each school, free of charge (Sustain Ontario, 2010).

Every SNP may provide breakfast, snacks, or both depending on the availability of funding, and are offered universally and indiscriminately to all children at the school (Ontario Ministry of Children and Youth Services, 2010). The programs are run independently at each school, entirely by staff volunteers. Each individual program is responsible for purchasing, preparing and serving its meals in compliance with the SNP nutrition guidelines<sup>1</sup> (Ontario Ministry of Children and Youth Services, 2010). Under the current guidelines, SNP providers, who in most instances are teachers, are provided with basic training pertaining to the preparation of nutritious meals such as safe food handling practices, choosing locally grown and/or produced foods, and being environmentally conscious when preparing meals for the SNP. However, there is no formal nutrition or health promotion training required by providers to oversee an SNP.

Provincial funding provides for 15% of the program costs, while the remaining 85% must be leveraged through voluntary community donations, parental or private sponsors (de Wit, 2012). In order to host an SNP, schools must demonstrate the ability to raise the 85% of funds needed for the program to operate. In 2013-2014, 4450 SNPs operated across the province, serving 756 800 students and providing 756 800 nutritious breakfast and/or snacks (Ontario Ministry of Children and Youth Services, 2013).

In 2012, childhood obesity was identified as a target for health action, and the government committed to reducing the prevalence of childhood obesity by 20% over 5 years, or by 2017 (Public Health Ontario, 2013). To assist in achieving this target, the Ontario government convened health and policy experts to the Healthy Kids Panel. In March 2013, the Panel released their report, “No Time to Wait: The Healthy Kids Strategy”, which advocated for the expansion of the Student Nutrition Program to all public schools in Ontario (Public Health Ontario, 2013). In April 2014, for the first time, the government established SNPs in First Nations communities (Ontario Ministry of Children and Youth Services, 2013).

Additionally, while Ontario’s current commitment to the SNP has grown over the past few years, the demand and need for the nutritional benefits conferred by the program continue to grow at an ever-increasing rate—in Toronto alone, municipal investment in SNPs has grown by 52% since 2005, but the number of students electing to participate in the program has grown by 86% (de Wit, 2005). The quality of existing programs is increasingly compromised due to increases in demand both within and across schools for SNPs, with many programs experiencing shortfalls including “inadequate funding, food

storage, and preparation and serving infrastructure” (de Wit, 2005). This has led to programs starting later in the school year (October vs. September), a decrease in the portion sizes (leading to decreased nutritional benefit), reducing the number of days per week the program operates, and closing operations earlier in the year than expected (de Wit, 2005). The programs thus suffer marked reductions in the nutritional, health and learning benefits the SNPs confer.

### **Economic Analysis of SNP**

#### ***Past Governmental Contribution to SNP***

Ontario first began funding SNPs in 2005 as part of their initiative to support child and youth nutrition (Sustain Ontario, 2010). In 2008, upon recognition of the primacy of nourishing students, Ontario committed an additional \$32 million over three years to support 700 new breakfast programs, and expand 300 existing programs over three years, as part of their Poverty Reduction Strategy (Sustain Ontario, 2010).

#### ***Cost of SNP Expansion***

In 2013-2014, the Ontario government contributed a total of \$32 million to serve 4 450 SNPs and 756 800 students across the province (Ontario Ministry of Children and Youth Services, 2013). This equates to an average contribution of approximately \$7 200 (= \$32 million / 4450 SNPs) to each SNP annually, at a cost of \$42 per student per year (= \$32 million / 756 800 students).

With a total of 4 897 public elementary and secondary schools in Ontario, 447 schools currently do not host an SNP (= 4897 schools - 4450 schools). In order to expand SNPs to all Ontario schools, an additional \$3.2 million is required each year (= \$ 7 200 \* 447 schools). Compared to the current \$32 million the Ontario government already devotes to SNPs, an additional \$3.2 million is only a 10% increase, but will allow all public elementary and secondary schools to be included in the program.

Table 1: Current Cost Analysis

Current contribution	\$32,000,000
Number of current operating SNPs	4 450
Number of current students participating in SNPs	756 800
Average annual contribution per SNP	\$7 200
Average cost per student per year	\$ 42

Table 2: Projected Cost Analysis

Number of publicly funded Elementary & Secondary Schools in Ontario	4 897
Number of operating SNPs in Public Elementary & Secondary Schools in Ontario	4 450
Number of schools without an SNP	447
Cost to fund additional SNPs	\$ 3 200 000

### ***Increase in Economic Productivity***

Currently no research evidence is available to demonstrate longitudinal reductions in obesity directly attributable to Ontario's own SNP. However, the Toronto District School Board (TDSB) recently conducted a two-year evaluation of the SNP's impact on student's academic and behavioural performance in elementary and secondary schools. Students participating in SNP and eating a morning meal were found to perform better in math or science courses. In high schools, 78% of those who ate a morning meal had earned enough academic credit to graduate, as compared to 61% of those who did not have breakfast (Muthuswamy, 2012). As high school graduates tend to have higher lifetime and annual net earnings, live longer and healthier lives, and are able to contribute more income tax, a 17% increase from 61% to 78% in graduation rate in Ontario will yield \$1.6 billion in government return<sup>2</sup>. In perspective, the cost of \$35 million is merely 2% of this prospective payback.

### ***Obesity Related Health Costs***

Within the healthcare system, obesity-linked diseases are often difficult to treat and manage, and with the rising prevalence of obesity, health institutions are experiencing higher patient volumes and more complex cases. The Ontario government currently spends \$647 million every year on obesity-related primary care costs, a significant portion of the province's total healthcare expenditure. Furthermore, being overweight or obese drastically increases the likelihood of developing chronic disease, which already accounts for the majority (67%) of all direct health care costs (Centre for Chronic Disease Prevention, 2012). Thus the economic burden of obesity can be broken down as both direct costs to the system (such as hospital care, pharmaceuticals etc) as well as indirect costs (such as those that arise from value of economic output lost as a result of premature death, and disability). An analysis by the NPS that focused on 8 chronic diseases associated with obesity showed that the annual economic burden of obesity in Canada increased by \$735 million, from \$3.9 to \$4.6 billion between 2000 and 2008. Another study which focused on 18 obesity-related chronic diseases estimated the economic burden to be as high as \$7.1 billion (Public Health Agency of Canada, 2011).

### **Principles**

1. All children in Ontario have the right to a healthy nutritious breakfast.
2. The federal, provincial, and municipal governments together with school boards and physicians are accountable for the health and well-being of children through policies that advocate for positive health outcomes.

### **Recommendations**

#### **1) SNPs should be expanded by 10% (\$3.2 million) in order to include all publicly funded elementary and secondary schools in Ontario**

By expanding SNPs to include all publicly funded elementary and secondary schools, we would extend the nutritional, physical and educational benefits of this program indiscriminately throughout the province. Universal provincial expansion is necessary to maximize the impact of SNPs in reducing childhood obesity, and help the Ontario government reach its commitment of reducing childhood obesity by 20% by 2017.

#### **2) Health professionals provide health promotion and nutrition training to teachers**

SNP providers, who in most cases are teachers, are currently provided with basic training pertaining to the preparation of nutritious meals. This training should be extended to include a comprehensive health promotion and nutrition training module. When teachers are adequately trained, they are able to more effectively educate and empower students. Physicians, public health nurses and other health professionals can also be involved in this process by helping to create health education modules that can be used during training sessions, and develop a curriculum around which teachers are trained. Physicians can also act as a liaison whom teachers can consult in case any questions are raised or advice is required.

#### **3) Monitoring and assessment on the progress of SNP**

Monitoring and evaluation of SNPs is crucial to determine its immediate and long-term outcomes, in particular its effectiveness in reducing the incidence of child obesity in Ontario. The SNP can work with the Public Health Agency of Canada in achieving their strategies as part of their national “Framework for Action to Promote Healthy Weights”, which aims to monitor factors influencing weight (e.g., food consumption, physical activity levels, healthy lifestyle awareness) (Public Health Agency of Canada, 2012). Collecting additional data including age, gender, height, weight, amount of physical activity, and attitudes towards nutrition, would enable an evidence-based approach to SNPs and optimize the programs’ benefits. If the budget permits, we highly recommend forming committees within schools to evaluate SNPs but if this is not feasible we suggest adopting a modified version of WHO’s global school-based student health survey (GSHS) for SNP monitoring. GSHS is a self-administered questionnaire to obtain data on factors associated with childhood obesity (WHO, n.d.-b).

### ***Footnotes***

1 Guidelines regarding recommended foods to serve and relative portions/serving sizes appropriate to ensure breakfast and/or snack meals provided by the individual SNP complies with healthy nutrition standards as per the Canada Food Guide.

2 According to the Boston Consulting Group, a 3% increase in graduation rate in all Canadian high schools would yield over \$500 million in government returns. In 2011-2012, 349 000 students graduated from high school in Canada (Statistics Canada, 2012). A 3% increase in graduation rate will lead to an additional 10 470 graduates nationally, with each graduate yielding \$47 800 (= \$500 million / 10470 students) in government returns. With Ontario's total student body of 2 million, an increase in graduation rate of 61% to 78% would mean an additional 342 600 graduates, with a payback to the government of \$1.6 billion.

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