

The school food solution: Creating a healthy school food environment with Canada's Food Guide

Chantelle Dacunha^{a*}
University of Toronto

Eric Ng^b
University of Toronto

Sarah Elton^c
Toronto Metropolitan University

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Abstract

In 2021, Canada's federal government made a historic commitment to develop a national school food policy. Among overlapping challenges of increasing food insecurity, rising food costs, and the impact on food systems from climate change, there is now an opportunity to create a school food environment that ensures universal access to nutritious foods and supports sustainability in food sys-

tems. A universal school food program can ensure that all children, regardless of income, access the recommended nutritious foods and can promote climate-friendly diets. Such school food programs can also support local farmers and regional economies. In this paper, we outline the policy context for the new Canada's Food Guide and the researched benefits of school food. We argue that Canada's Food Guide can support a healthy school environment that is equitable and that promotes sustainability in the food system by embracing founding principles of diet equity and sustainability. Our concluding discussion outlines issues to be addressed in implementation.

Keywords

School Food, Food Policy, Canada's Food Guide, Sustainable Food Systems, Policy Implementation, Nutrition Equity, Food Environment, Climate Friendly Diet, Plant-Based, Local Procurement

^{a*} *Corresponding author:* Chantelle Dacunha, Graduate Student, Dalla Lana School of Public Health, University of Toronto; 155 College Street, 6th Floor; Toronto, Ontario M5T 3M7 Canada; +1-647-214-1704; c.dacunha@mail.utoronto.ca

^b Eric Ng, Assistant Professor-Teaching Stream, Dalla Lana School of Public Health, University of Toronto; erickh.ng@utoronto.ca

^c Sarah Elton, Ph.D., Assistant Professor, Department of Sociology, Toronto Metropolitan University; sarah.elton@ryerson.ca

Introduction

In 2019, the Government of Canada created the country's first-ever national food policy. Its six "priority outcomes" included "improved food-related health outcomes" to reduce the burden of nutrition-related chronic disease in the country and "sustainable food practices" to reduce the impact of the food system on the climate and environment (Agriculture and Agri-Food Canada, 2019). Also in 2019, the Minister of Health released a revised version of Canada's Food Guide as part of Canada's Healthy Eating Strategy. These nutrition guidelines recommend that Canadians eat less processed foods and more plant-based proteins, as well as fruits, vegetables and whole grains (Health Canada, 2021). The revised Canada's Food Guide encourages people to cook at home more often, incorporate cultural traditions into mealtimes, and enjoy food with others (Health Canada, 2021).

Then, at the end of 2021, the federal government pledged to change Canada's status as the only G7 country without a school food program. The commitment was to "develop a National School Food Policy and work toward a national school nutritious meal program" (Office of the Prime Minister of Canada, 2021-a, para. 23; 2021-b). A national school food program allows Canada to join with Finland, France, Senegal, Honduras, and Iceland in the School Meal Coalition, a group of over 60 governments and 50 U.N. agencies and organizations committed to "a healthy meal for every child, every day" (School Meals Coalition, n.d., para. 1). The revised Food Guide ought to be an integral component in the implementation of this national policy.

On the backdrop of these three food policy directives, we argue that a national school food program based on the 2019 Canada's Food Guide should be informed by the founding principles of diet equity and sustainability. These principles have the potential to allow more children to eat the recommended healthy foods and also to promote sustainability in the Canadian food system. Such an approach would build on the successes of other countries and have the potential to innovate in ways that could inform other jurisdictions' approaches to school food.

The current policy environment in Canada pre-

sents this opportunity (Carbone et al., 2020). A similar opportunity was missed in the mid-1940s during the Second World War when many other Western industrialized countries developed their programs (Carbone et al., 2020; Ruetz & McKenna, 2021). COVID-19 has exposed inequities in Canada's food system with regard to food access (Ayer, 2020) and has highlighted food insecurity issues related to income inequality (Statistics Canada, 2020; Tarasuk & Mitchell, 2020). Also, in 2021, forest fires, extreme heat, and devastating flooding in several provinces drove home the 2021 Intergovernmental Panel on Climate Change (IPCC) report, which warned of "widespread, rapid and intensifying" (2021a, p. 1) climate change. It included a call for immediate action (IPCC, 2021b) to protect many aspects of social systems, including food. Parts of the Canadian food system were directly affected by these extreme weather events, as crops and livestock were lost and food supplies were restricted (Woo & Hui, 2021). This reminded Canadians of the food system's vulnerability to climate events at a time when inflation has been raising food prices (Charlebois et al., 2021). These concurrent and overlapping food-related challenges underline the importance of establishing a national school food program that can respond to the current context. We outline our proposal by firstly summarizing the policy context for the new Canada's Food Guide. We provide an overview of the researched benefits of school food programs that have bolstered recent advocacy efforts in Canada. Next, we reason how a school food program based on Canada's Food Guide has the potential to promote a more healthy and just school food environment by embracing the founding principles of diet equity and sustainability. Our concluding discussion outlines issues to be addressed.

Background and Context

2019 Canada's Food Guide

When the revised Canada's Food Guide was launched in 2019, its plant-based approach diverged from past editions. The new focus on proteins from plants and its centering of water as the drink of choice inspired some to cast it as a

push toward veganism (Kirkey, 2017). The dairy and livestock industries voiced concern over Canada's Food Guide turning away from animal proteins as important sources of nutrients (Rieger, 2018). Conversely, the Dietitians of Canada (2019) and the Heart and Stroke Foundation (2019) praised the document for reflecting the position of nutrition experts and for drawing on evidence-based research rather than industry-commissioned reports (Lavigne & Lengyel, 2019; Wilson & Shukla, 2020). In emphasizing plant-based proteins, the Canada's Food Guide aligns with both the Planetary Health Diet created by the EAT-Lancet Commission on Healthy Diets From Sustainable Food Systems (Lancet Planetary Health, 2019) and the position on diet and sustainable food systems articulated by Nordic countries (Wood et al., 2020). Similar to the Brazil Food Guide (Ministry of Health of Brazil, 2014), this revised guide not only made new behavioral recommendations to Canadians but also cautioned about the impact of food marketing (Health Canada, 2021).

Some scholars and advocates criticized Canada's Food Guide for failing to consider the affordability and accessibility of culturally appropriate and healthy foods (Dibe, 2020; Duignan, 2019; Wilson & Shukla, 2020). A national survey conducted at the time found that there was a perception among respondents that the recommended foods would cost more and that they did not match people's preferred diets (Charlebois et al., 2019). Further, many Indigenous and racialized households are unable to meet the recommendations due to higher rates of poverty (Dhunna & Tarasuk, 2021; Olstad et al., 2021; Tarasuk & Mitchell, 2020). For example, 28.4% of Black households experience food insecurity compared to only 10% of White households in Canada (Dhunna & Tarasuk, 2021). And according to the Government of Canada, 27 First Nations communities had "long-term drinking water advisories," meaning a lack of access to water (Government of Canada, 2022). The Canada's Food Guide recommendations alone are not able to advance food security without significant investment in social policy and restitution for structural racism.

School Food in Canada Today

With no national school food program in Canada, provincial and territorial governments, school boards, not-for-profit organizations, and charities currently plan and implement the existing patchwork of school food programs and policies (Critch, 2020). Although the federal government provides monetary support to provincial and territorial governments (Hernandez et al., 2018; Martorell, 2017), governments, charities, and foundations fund the current system through grants, leading to different school food programs competing against each other for limited funding while relying on volunteers and donations (Ruetz & McKenna, 2021; Valaitis et al., 2014). This reliance on precarious funding sources is higher in lower-income and racialized neighborhoods with higher degrees of marginalization and inequitably unhealthy food environments (Toronto Public Health, 2015). It has been argued that this current patchwork of programs places the burden and responsibility onto marginalized communities and families themselves (Allen & Guthman, 2006; Carbone et al., 2020; Ruetz & McKenna, 2021).

Currently, almost three-quarters of Canadian children bring lunch from home (Tugault-Lafleur et al., 2018). While a small number acquire lunch at school, as some institutions have cafeterias and food programs, other students seek food off campus (Tugault-Lafleur et al., 2018). This includes fast-food joints, corner stores, and other rapid-service food businesses, judging from the noon-hour crowds of teenagers near public high schools. Notably, Tugault-Lafleur and colleagues (2018) found that 5.9% of students do not eat any lunch at all. In 2017, the UNICEF Report Card on child well-being ranked Canada 37th out of 41 high-income countries in food security and nutrition (Wolff et al., 2017). A vocal consortium of academics and activists (including the Coalition for Healthy School Food, with which co-authors have collaborated) has been advocating for the federal government to start a universal and national school food program; this program would provide nutritious food for every child in the public school system, no matter their income level or where they live in the country (Coalition for Healthy School Food, n.d.). While the provision

of education in Canada is under provincial jurisdiction, advocates point to the 1.2 million Canadian children who live in food-insecure households (Tarasuk & Mitchell, 2020) who would benefit from a federal-level policy.

Documented Benefits of School Food Programs

School food advocacy builds on the benefits of meal programs documented in the literature. Canadian research shows that school food programs with nutrition education and standards increase children's nutrition knowledge and willingness to try fruits and vegetables, which can have lasting individual and population health benefits (Colley et al., 2019). Likewise, school food programs in Europe are associated with increased consumption of fruit and vegetables when nutrition education is included in the program (Van Cauwenberghe et al., 2010). Implementing school food programs is also associated with improved behavior and academic performance (Anderson et al., 2017; Kleinman et al., 2002). These benefits were echoed in a systematic review by Cohen et al. (2021). They found that universal free school meal programs in developed countries are associated with improvements in school attendance, academic performance, the nutritional quality of children's diets, and food security status. Further, advocates argue that a national school food program can help remedy childhood exposure to highly processed foods (Macari et al., 2019). In Canada, over half of children's and adolescents' total energy intake comes from ultra-processed foods (Polsky et al., 2020). Moubarac and colleagues (2013; 2017) found that consumption of ultra-processed foods has increased steadily while consumption of unprocessed foods has been declining in all sociodemographic groups. However, food-insecure households are associated with increased nutritional vulnerability and are more likely to have poorer diets (Kirkpatrick & Tarasuk, 2008; PROOF, n.d.).

In addition to supporting population health goals, school food programs have been structured to support food systems goals. Some countries with national school food programs—such as Brazil (Ruetz & Fraser, 2019), South Korea (Gaddis & Jeon, 2020; Ting, 2020), Scotland (McKendrick & Cathcart, 2021), Finland (Ahponen, n.d.; European

Commission, n.d.-a), and Italy (European Commission, n.d.-b; Municipality of Rome, Italy, n.d.)—have designed meal programs so that they support regional food economies and sustainable agriculture. For example, in Italy and parts of France (Coalition for Healthy School Food, 2021a; Elton, 2013), ingredients for school meals are procured from organic farms in the regional foodshed. These linkages between regional agriculture and school meal programs have been found to provide farmers with a steady income and provide fresh and nutritious food to children (Allen & Guthman, 2006). Results from some farm-to-school programs also indicate a positive impact on the nutritional quality of food and students' nutrition self-efficacy and willingness to try fruits and vegetables. There are, however, mixed findings about whether farm-to-school programs increase fruit and vegetable consumption, with some studies finding positive impacts and others reporting no difference (Prescott et al., 2020).

In Canada, some existing school food programs promote local agriculture and short supply chains. The Ontario Student Nutrition Program ran a Tasty Ontario Tuesdays program from 2017 to 2018. The program provided more than 40,000 students from 150 schools with local fruits and vegetables, contributing CA\$55,000 of produce purchased from local Ontario farmers (Ontario Student Nutrition Program, n.d.; Ruetz & Smithers, 2018). Farm to Cafeteria supports programs that connect farms with institutional food services, including over 1,000 Canadian schools, spending roughly CA\$16 million on local food purchases per year (Farm to Cafeteria Canada, n.d.). In Alberta, the Nanâtohk Mîciwin program, run by Maskwacîs Education Schools Commission (MESC), provides healthy meals for all 11 MESC schools, supports local food production, and builds relationships between local farmers, schools, and community partners (MESC, n.d.).

The School Food Solution

Schools offer an ideal setting to improve diet. Children spend a large proportion of their day in class and consume, on average, one-third of their energy intake during school hours (Hunter et al., 2020; Tugault-Lafleur et al., 2017). This is one reason

why the World Health Organization (2012) identified schools as a key player in the global promotion of public health. Canada's Food Guide has the potential to support an equitable healthy school environment that promotes sustainability in the food system if it is informed by the founding principles of diet equity and sustainability.

Diet Equity Through Culturally Appropriate Food and Nutrition

Canada's Food Guide provides evidence-based nutrition standards for school food that, in a universal program, can ensure all public-school children in Canada receive a nutritious meal regardless of their income or neighborhood. The development of nutrition standards for schools has been demonstrated to optimize student nutrition (Critch, 2020; Foster et al., 2008; Gearan & Fox, 2020; Jaime & Lock, 2009; Tugault-Lafleur et al., 2019; Vereecken et al., 2005; Wojcicki & Heyman, 2006). School nutrition standards influence the increased intake of fruits and reduced intake of saturated fat and sodium (Micha et al., 2018). With mandated nutrition standards in India, national school food programs have led to better nutritional status and intergenerational nutrition benefits (Chakrabarti et al., 2021; Chutani, 2012; Laxmaiah et al., 1999). In Sweden, nutrition standards have led to higher nutrient intakes (Persson Osowski et al., 2017). Similarly, school food nutrition standards in South Korea (Gaddis & Jeon, 2020; Ting, 2020) and Finland (Ahponen, n.d.; European Commission, n.d.-a) allow children to have nutritious meals daily. Further, marginalized neighborhoods often have lower access to healthier food stores—such as in Canada's largest city, Toronto (City of Toronto, 2014). These neighborhoods have a higher need for school food programs (de Wit, 2012). In Canada, nutritional health is inequitably distributed, with the quality of diets and food security reported to be lower among children in low-income, racialized, Black and Indigenous households (Olstad et al., 2019, 2021; Tarasuk & Mitchell, 2020). Tugault-Lafleur et al. (2019) found that the diet quality of foods consumed by Canadian students during school hours in 2015 was lower among students from food-insecure households compared with those from food-secure households.

A school food program based on Canada's Food Guide can help to address these inequities. Importantly, a *universal* program ensures that no one is left behind, regardless of where they live or which public school they attend. Children who live in households where adults must choose between paying rent and covering the cost of food can be sure to have access to healthy foods at school. Children in neighborhoods with unhealthy food environments, where the cost of healthy foods exceeds the price of highly processed options, can also count on eating well at least once a school day. That means that children who do not have the same dietary advantages as those raised in families with well-stocked pantries and fridges are not nutritionally deprived. While it would not replace income-based solutions to food insecurity, a universal school food program based on Canada's Food Guide would help reduce the diet inequities experienced by marginalized communities (Haines & Ruetz, 2020) and contribute to a broader social safety net.

There is also an opportunity for a new universal school food program to address some of the criticism of the 2019 Canada's Food Guide concerning its challenges in reaching culturally diverse, racialized, and Indigenous populations with its dietary recommendations (Barco Leme et al., 2022; Duignan, 2019; Wilson & Shukla, 2020). Some observers were concerned that the Canada's Food Guide image of a "healthy plate" presented in the style of Euro-Western cuisine did not represent diverse understandings of nutrition, food cultures, or cuisines. Rather than taking a Eurocentric one-size-fits-all approach to food (Wilson & Shukla, 2020, p. 203), a school food meal program can apply the Canada's Food Guide's principles of healthy eating to a variety of cuisines through community engagement. School food programs can be designed in partnership with local communities, allowing for the expression of food culture in tandem with the food guide. As mentioned, the Nanátohk Míciwin program in Alberta demonstrates how community-led programming can incorporate Indigenous foods, traditions, and cultures when developing healthy menus (MESC, n.d.). Also, engaging multiple diverse Indigenous community members is essential in program plan-

ning; as Johnston (2019) explains, each Indigenous community has their unique traditional diets based on their culture and territories.

Other countries, such as France and Italy, use the school meal program to educate about food culture. This approach could be adapted to the Canadian context, where children from diverse cultural cuisines who attend the same school might come together and share a meal at lunch (Rossi et al., 2021; Vieux et al, 2018). The approach would have to be tailored to the disparate foodsheds of each province, taking into consideration climate, geography, and food supply. While a nationally funded program that is locally responsive is a policy feat, in Scotland, federal funds are distributed to local councils that organize catering in schools (Coalition for Healthy School Food, 2021c). With the 2019 Canada's Food Guide serving as a nutritional compass, school food programs led by community members can determine the menu. In doing so, they can adapt nutrition standards to the distinct cultural food practices of their diverse communities as well as the constraints and opportunities of the local foodshed.

Sustainability in Food Systems

School lunch programs can also support sustainable food systems (Oostindjer et al., 2017). It has been argued previously that a school meal program in Canada could help to promote sustainability transitions in the food system (Kirkpatrick et al., 2019). Canada's Food Guide, here too, offers direction. In promoting a plant-based diet, the 2019 Canada's Food Guide has been said to promote a climate-friendly diet. By turning away from meat and dairy, it de-emphasizes the dietary importance of some of the most climate-intensive categories of foods. Thus, Canada's Food Guide forwards sustainability in diet. A universal, national school meal program based on this document could have the potential to offer not only more equitable access to healthy foods, but also offer the promise of supporting sustainability in food systems. A school menu that is low in greenhouse gas emissions could center on vegetables, white meat, and legumes, as proposed by Rossi et al. (2021).

Feeding children chili made with kidney beans, as opposed to ground beef, is likely a carbon-

positive decision—particularly if the beef was raised in a carbon-intensive farming system (Broom, 2019). However, to ensure that a universal national school food program meaningfully supports a climate-friendly diet, one would have to consider not only the nutritional content and type of food—kidney beans versus beef—but also the environmental impact and sustainability of the food system that produced it (Elton & Cole, in press). Not all plant-based food is good for the environment; almond milk is an example of a plant-based food with a high environmental cost (Winans et al., 2020). Conversely, livestock agriculture oftentimes is a key component of small-scale regional farming, providing manure used as fertilizer for crops and animal proteins that, when sold, offer on-farm income for farms dedicated to agroecology of the kind that is often found in rural areas across the country (Elton, 2013). To truly forward sustainability, a school food program would need to rely on the 2019 Canada's Food Guide and consider what evidence-based sustainable food systems look like in a particular region. This raises questions about how best to evaluate the sustainability of a nationally funded, locally administered program. In other countries, such as Germany, the government oversees sustainability in meal planning. In that country, five federal ministries, including the Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection, contribute to the design of sustainable and healthy menus (Coalition for Healthy School Food, 2021b). In Scotland, the nonprofit Soil Association has developed Food for Life Scotland, which collaborates with local authorities and suppliers to ensure school meals are sustainable and healthy (Coalition for Healthy School Food, 2021c).

National governments have structured school food programs to support not only kids' nutrition and sustainability but also the regional economy. In France, the government legislated the food program to support small-scale, regional farmers. The motivation is rooted in the belief that public procurement can have social and economic benefits (Swensson, 2018). A similar approach has been taken in Brazil, where governments have designed school food programs to support agroecological

transitions to more sustainable farming through the National Policy for Agroecology and Organic Production (Resque et al., 2019). There are other jurisdictions too, including in North America, where local procurement is key to lunch programs (Resque et al., 2019; Watson et al., 2018). These are just some of many well-studied examples of farm-to-school procurement programs that can inform a Canadian strategy.

Finally, following Canada's Food Guide recommendations offers the potential to further other food-related social goals. A focus on sustainability could include promoting food literacy and environmental education (Hernandez et al., 2018; Kirkpatrick et al., 2019). It has been argued that a successful school food program must include a component of food literacy (Haines & Ruetz, 2020; Hernandez et al., 2018). The integration of education based on Canada's Food Guide into a food program has the potential to help educate children about food, healthy eating, and food systems, too (Bergman et al., 2020; Haines & Ruetz, 2020; Hernandez et al., 2018; Lucas et al., 2017).

Concluding Discussion

A school food program based on Canada's Food Guide has the potential to promote a more healthy and just school food environment by building on the founding principles of diet equity and sustainability, as we have reasoned. While generations of Canadian children have not had the benefit of a national lunch program, there is a silver lining in designing a program at this moment in history, when there is awareness of the structural and social causes of food inequity, including anti-Black racism (Roberts, 2020), cultural genocide (Mosby & Galloway, 2017), and land theft from Indigenous peoples (Mintz, 2020). Also, the health risks of ultra-processed foods are well known (Moubarac, 2017), as are the climate and environmental impacts of climate change. However, we acknowledge that designing a national program in a country where 13 provinces and territories will administer a nationally funded program is not a simple task. Below is a list of issues relating to diet equity and sustainability that must be addressed to ensure the success of implementing a national school food policy.

Firstly, to meaningfully address diet equity, Black and Indigenous professionals and communities must be included in the design of the national program using anti-racism principles (Coalition Team, 2020). They should be included in the initial stages and then in planning the multitude of local programs that will be built with federal dollars. Secondly, to ensure that all children have access to healthy meals prepared with whole foods, as opposed to convenient pre-packaged ultra-processed foods such as granola bars with added sugars and other plastic-wrapped snacks that were offered in many school programs during the pandemic, there will be infrastructure and staffing needs. Few schools have kitchens, with the ones that existed having been closed in the last decades (Elton, 2013). However, other countries such as France have figured out how to deliver healthy meals to kids through catering contracts with private companies where tens of thousands of meals are cooked each day; there are also public canteens that offer a similar service but are government-run (Engler-Stringer, 2022).

In terms of supporting local and sustainable food systems, seasonality in the northern hemisphere is a concern, considering the prime growing season is during the summer, when school is out. One solution could be a food preservation program informed by greenhouse-gas data (to ensure compliance with sustainability metrics) that continues employing canteen workers during the school holiday to preserve local ingredients for the off-season. In this case, freezers and storage of canned goods would need to be included in the program design. Investments also can be made in cold storage of crops such as carrots, onions, potatoes, squash, and so forth. Further, many foods are produced year-round in the country, including eggs, dairy, and poultry that are organized to meet market demand by farmer-run supply management programs. There is also a year-round supply of meats, lake and ocean fish, pulses and grains, mushrooms, and greenhouse produce. Food waste and sustainability concerns with regard to packaging and distribution of meals must also be addressed. National standards for local programs can guide this process, as well as labor justice standards for all workers.

Despite the many complexities that inevitably must be addressed, the opportunity to design an equitable and sustainable program is possible, shaped by Canada's Food Guide, as also recommended by the Coalition for Healthy School Food (Coalition for Healthy School Food, 2022). Such a program would also conform to the health and sustainability outcomes prioritized by the national food policy. Echoing Ruetz and McKenna (2021), the national school food program must be sufficiently funded by the federal government. Programs run with adequate resources can provide fair wages to community members and create secure employment that supports local economies (Ruetz & Fraser, 2019). Sufficient social investment can help build program infrastructure and social net-

works within school communities to keep programs running well and adequately adhere to nutrition standards to promote the health and well-being of children in the long term (Critch, 2020; Ruetz & McKenna, 2021; Valaitis et al., 2014). Program implementation should be guided by well-defined nutrition, environmental, and education standards, coupled with proper monitoring parameters and evaluation plans to ensure that standards and goals are met. Evaluations should capture changes in local procurement, ecological impact, relationships with local farmers and agricultural workers, food literacy, dietary intake, and social impacts on low-income households and school communities.

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