

# Research and interjurisdictional scan

## Background

To support the revisions to the 2019 Student Nutrition Program (SNP) Nutrition Guidelines, the project team committed to conducting a rapid literature review and interjurisdictional scan, according to the details below:

- The project team will develop a research question using the PICO method (i.e., population, intervention, comparison, outcome) and will conduct a literature review to determine current evidence related to nutrition, healthy eating, healthy child development, and supportive nutrition environments.
- The rapid literature review will focus on children and youth (age 4-18) and the school setting. Particular attention will be given to key policy documents such as the 2019 Canada's Food Guide and Canada's Dietary Guidelines for Health Professionals and Policy Makers.
- The project team will also conduct an inter-jurisdictional scan to identify best practices for supporting healthy food options in school-based meal and snack programs. Jurisdictions similar to Ontario will be prioritized (e.g., other Canadian provinces).

## Research question

1. What foods should be prioritized and minimized in school-based food programs for children and youth aged 4 to 18 years to support healthy development?

Population: children and youth aged 4 to 18 years

Intervention: school-based food programs with food and/or nutrition guidance

Comparator: no program, no guidance

Outcome: information about which foods to promote and discourage to support healthy child and adolescent development

### *Summary of Q1 rapid literature review*

<b>Foods to prioritize</b>	<b>Foods to minimize</b>
<ul style="list-style-type: none"><li>• Vegetables and fruits, especially different colours</li><li>• Whole grains</li><li>• Protein foods, especially plant-based proteins<ul style="list-style-type: none"><li>○ Protein foods = legumes, nuts, seeds, tofu, fortified soy beverage, fish, shellfish, eggs, poultry, lean red meat including wild game, lower fat milk, lower fat yogurts, lower fat kefir, and cheeses lower in fat and sodium</li></ul></li><li>• Foods with mostly unsaturated fat</li><li>• Water</li><li>• Different kinds of foods (i.e., variety)</li><li>• Culturally appropriate foods</li></ul>	<ul style="list-style-type: none"><li>• Processed foods higher in sodium, free sugars, and/or saturated fat</li><li>• Processed meats, deep-fried foods, sugary breakfast cereals, biscuits and cake, confectioneries, sugary drinks, ready-to-eat packaged dishes<ul style="list-style-type: none"><li>○ Confectioneries = candies, candy bars, fruit leathers, chocolate, chocolate coated treats</li><li>○ Sugary drinks = soft drinks, fruit-flavoured drinks, 100% fruit juice, flavoured water with added sugars, sport and energy drinks, sweetened hot or cold beverages (e.g., iced tea, cold coffee beverages, sweetened milks, sweetened plant-based beverages)</li></ul></li><li>• Foods with artificial trans fat</li><li>• Foods with caffeine, including energy drinks</li></ul>

Rapid literature review results: Question 1 What foods should be prioritized and minimized in school-based food programs for children and youth aged 4 to 18 years to support healthy development?

Source	Type	Population	Jurisdiction	Foods to prioritize	Foods to minimize
<a href="#">Canada's Dietary Guidelines for Health Professionals and Policy Makers</a>	Government nutrition guidelines	2+ years	Canada	<ul style="list-style-type: none"> <li>-Nutritious foods: vegetables; fruits; whole grains; protein foods; including plant-based proteins</li> <li>-Foods with mostly unsaturated fat</li> <li>-Water</li> <li>-Nutritious foods that are fresh, frozen, canned, dried</li> <li>-Only consume dried fruit with meals</li> <li>-Culturally appropriate foods</li> <li>-Eat a variety of foods daily</li> </ul>	<ul style="list-style-type: none"> <li>-Processed foods high in sodium, free sugars, and/or saturated fat</li> <li>-Processed meats, deep-fried foods, sugary breakfast cereals, biscuits and cake, confectioneries, sugary drinks, ready-to-eat packaged dishes</li> <li>-Confectioneries = candies, candy bars, fruit leathers, chocolate, chocolate coated treats</li> <li>-Sugary drinks = soft drinks, fruit-flavoured drinks, 100% fruit juice, flavoured water with added sugars, sport and energy drinks, sweetened hot or cold beverages (e.g., iced tea, cold coffee beverages, sweetened milks, sweetened plant-based beverages)</li> <li>-Free sugars &lt;10% of TEI</li> <li>-Saturated fat &lt;10% TEI</li> <li>-Foods with artificial trans fat</li> </ul>
<a href="#">Micha R, Karageorgou D, Bakogianni I, Trichia E, Whitsel LP, Story M, Penalvo JL, Mozaffarian D. (2018). Effectiveness of school food environment policies on children's dietary behaviors: A systematic review and meta-</a>	Systematic review and meta-analysis	2-18 years	US UK Netherlands Norway Canada South Korea	<ul style="list-style-type: none"> <li>-School meal standards that provide guidance on vegetable and fruit consumption increased habitual fruit consumption and tended to increase habitual vegetable consumption (though results were not significant for vegetables)</li> <li>-School meal standards for sodium decreased habitual intake at breakfast and lunch</li> </ul>	

Source	Type	Population	Jurisdiction	Foods to prioritize	Foods to minimize
<a href="#">analysis. PLoS ONE [Electronic Resource]. 13(3). e0194555.</a>				-School meal standards increased fruit intake by 0.76 servings/d, reduced total fat intake by ~1.5% energy and saturated fat intake by ~1% energy, and reduced sodium by 170 mg/d	
Dietitians of Canada. 2014. 5 steps to healthy eating for children aged 4-11. Accessed via PEN.	PEN handout	4-11 years	Not specified	<ul style="list-style-type: none"> <li>-Offer vegetables and fruits at most meals, including one dark green and one orange vegetable daily</li> <li>-Prioritize whole grains high in fibre</li> <li>-Serve lower fat milk</li> <li>-Prioritize foods with unsaturated fats</li> <li>-Encourage children to drink water</li> </ul>	<ul style="list-style-type: none"> <li>-Grains higher in sugar, salt, and fat</li> <li>-Foods with saturated fat</li> <li>-Limit packaged and processed foods (e.g., deli meat, pop, fruit drinks, canned soups, cookies, chips)</li> </ul>
Dietitians of Canada. 2014. 5 steps to healthy eating for youth aged 12-18. Accessed via PEN.	PEN handout	12-18 years	Not specified	<ul style="list-style-type: none"> <li>-Offer vegetables and fruits at every meal</li> <li>-Choose vegetables and fruits of different colours</li> <li>-Prioritize whole grains high in fibre</li> <li>-Serve lower fat milk</li> <li>-Prioritize foods with unsaturated fats</li> <li>-Encourage youth to drink water</li> </ul>	<ul style="list-style-type: none"> <li>-Grains higher in sugar</li> <li>-Foods with saturated fat</li> <li>-Limit sugary drinks (e.g., pop, juice, sweetened tea, sports drink)</li> <li>-Limit foods high in caffeine (e.g., coffee, cola)</li> <li>-Avoid energy drinks</li> </ul>
<a href="#">Statistics Canada. Table 13-10-0096-01 Health characteristics, annual estimates.</a>	Data table	12-17 years	Ontario	-In 2017, 23.6% of youth consumed vegetables and fruits 5 or more times each day	

Source	Type	Population	Jurisdiction	Foods to prioritize	Foods to minimize
Health Canada. 2012. Do Canadian children meet their nutrient requirements through food intake alone?	Government document	1-8 years	Canada	-Foods high in vitamin D, calcium, potassium, fibre	-Calorie-dense foods -Foods high in sodium
Health Canada. 2012. Do Canadian adolescents meet their nutrient requirements through food intake alone?	Government document	9-18 years	Canada	-Foods high in magnesium, vitamin A, vitamin D, calcium, phosphorus, potassium, fibre	-Calorie-dense foods -Foods high in saturated fat -Foods high in sodium
Moubarac JC, Martins AP, Claro RM, Levy RB, Cannon G, Monteiro CA. 2013. Consumption of ultra-processed foods and likely impact on human health. Evidence from Canada. Public Health Nutrition, 16(12), 2240-8.	Academic research study		Canada		-Soft drinks, juices, candies (confectionary), chocolates, ice creams, fruit preparations, pastries, cakes, and cookies (75% of free sugars consumed in Canada come from these foods)  -Ultra-processed foods (ready-to-consume/eat industry formulations manufactured from cheap ingredients directly extracted from whole foods, such as oils, fats, sucrose and flours, or processed from components extracted from whole foods such as high-fructose corn syrup, hydrogenated oils, a variety of starches, and the cheap parts or remnants of meat; these products are typically added of several preservatives and cosmetic additives, with little or no content of whole foods.
<a href="#">School Food Standards. n.d.</a>	Government guidelines	School age	UK	-Variety, different coloured V/F -Prioritize unsaturated fat -Water	-Foods high in fat, sugar, and salt

2. What are the best practices for creating environments that support healthy eating for children and youth aged 4 to 18 years?

Population: children and youth aged 4 to 18 years

Intervention: information, guidelines, direction, advice, etc. about how to create environments that support healthy eating

Comparator: none

Outcome:

- Structural supports (e.g., physical characteristics of eating environment, amount of time available to eat)
- Behavioural outcomes (e.g., willingness to try new food, attention and adherence to hunger and fullness cues, healthy relationships with food, intuitive eating principles)

*Summary of Q2 rapid literature review*

- Give children adequate time to eat
- Provide opportunities for children to eat with their peers
- Provide a pleasant eating environment that is free of distractions (especially screens) and make the food look appealing
- Allow children to listen and respond to their hunger and fullness cues
- Follow the division of responsibility in feeding
- Offer a variety of foods
- Encourage children to try new foods by repeatedly exposing them to new foods; offer new foods on different days accompanied by familiar foods
- Focus on healthy eating habits and do not emphasize body weight
- Avoid pressure, praise, rewards, tricks, or punishment
- Incorporate culture and food traditions
- Adults should model positive eating behaviours and be aware of and take steps to minimize weight bias

Rapid literature review results: Question 2 What are the best practices for creating environments that support healthy eating for children and youth aged 4 to 18 years?

Source	Type	Population	Jurisdiction	Supportive eating environments
<a href="#">Canada's Dietary Guidelines for Health Professionals and Policy Makers</a>	Government nutrition guidelines	2+ years	Canada	<ul style="list-style-type: none"> <li>-Eat with others</li> <li>-Take time to eat</li> <li>-Pay attention to your hunger and fullness cues</li> <li>-Enjoy your food</li> <li>-Incorporate culture and food traditions</li> <li>-Adults should model positive eating behaviours</li> </ul>
<a href="#">Nekitsing C, Blundell-Birtill P, Cockcroft JE, &amp; Hetherington MM. (2018). Systematic review and meta-analysis of strategies to increase vegetable consumption in preschool children aged 2-5 years. Appetite, 127, 138-154.</a>	Systematic review and meta-analysis	2-5 years	Not specified	<ul style="list-style-type: none"> <li>-Repeatedly exposing children to unfamiliar/disliked vegetables and fruits can improve acceptance and increase intake of these foods</li> </ul>
Dietitians of Canada. 2014. 5 steps to healthy eating for children aged 4-11. Accessed via PEN.	PEN handout	4-11 years	Not specified	<ul style="list-style-type: none"> <li>-Focus on eating habits and not body weight</li> <li>-Adults should model healthy eating habits</li> <li>-Provide opportunities to eat together</li> <li>-Allow children to respond to their hunger and fullness cues</li> <li>-Let children serve themselves healthy foods until they feel full</li> <li>-Offer a variety of foods</li> <li>-Provide an eating environment free of distractions (especially screens)</li> </ul>
Dietitians of Canada. 2010. Feeding your 6-12 year old picky eater. Accessed via PEN.	PEN handout	6-12 years	Not specified	<ul style="list-style-type: none"> <li>-Division of responsibility of feeding</li> <li>-Provide opportunities to eat together</li> <li>-Allow the child to decide if and how much to eat</li> <li>-Adults should model healthy eating behaviours</li> <li>-Provide a pleasant space in which to eat</li> <li>-Avoid pressure, praise, rewards, tricks, or punishment</li> </ul>

Source	Type	Population	Jurisdiction	Supportive eating environments
				<ul style="list-style-type: none"> <li>-Offer new foods on different days in small amounts with familiar foods</li> <li>-Involve children in food selection and meal preparation activities</li> <li>-Prepare foods in different ways</li> </ul>
Dietitians of Canada. 2014. 5 steps to healthy eating for youth aged 12-18. Accessed via PEN.	PEN handout	12-18 years	Not specified	<ul style="list-style-type: none"> <li>-Eat meals with others</li> <li>-Encourage youth to listen to and respond to their hunger and fullness cues</li> <li>-Offer a variety of foods</li> <li>-Take time to enjoy food</li> <li>-Provide an eating environment free of distractions (especially screens)</li> <li>-Involve youth in food selection and meal preparation activities</li> </ul>
Dietitians of Canada. 2019. Weight stigma background. Accessed via PEN.	PEN background	General population	Not specified	<u>Take home messages</u> <ul style="list-style-type: none"> <li>-Weight bias occurs in schools</li> <li>-Larger-bodied children experience weight bias from their teachers and peers</li> <li>-Schools should take steps to reduce weight bias and be inclusive of children of all shapes and sizes</li> </ul>
<a href="#">School Food Standards. n.d.</a>	Government guidelines	School age	UK	<ul style="list-style-type: none"> <li>-Food should look appealing</li> <li>-Serve food in a pleasant environment</li> <li>-Allow children to eat with their peers</li> <li>-Talk to kids about what they're eating and how the food was prepared</li> </ul>



## Interjurisdictional scan

### *Question*

What nutrition and/or healthy eating information (e.g., guidelines, direction, advice, best practices) do Canadian jurisdictions outside of Ontario use to support school-based food programs for children and youth aged 4 to 18 years?

- Note: priority will be given to information that incorporates the direction and messaging of the 2019 CFG.

### *Summary of IJ scan (see table below)*

- No province has updated their nutrition guidance for school-based meal programs to align with the 2019 CFG.
- Food guidance:
  - Offer a variety of foods from within and between food groups
  - Offer foods that align with the 2007 CFG: vegetables/fruits, whole grains, lower fat milk and alternatives, and lean meat and alternatives
  - Prioritize whole foods and limit ready-to-eat packaged foods
  - Minimize foods higher in salt, added sugar, and saturated fat; do not serve foods with trans fat
  - Encourage the consumption of water
- Supportive eating environment guidance
  - Provide appropriate time and space to eat
  - Make eating areas pleasant and inviting
  - Support children/youth to listen to their hunger/fullness cues
  - Ensure adults model positive food and eating behaviour
  - Respect and be inclusive of cultural diversity, especially of Indigenous peoples
  - Do not use food as punishment or reward
  - Celebrate that healthy bodies come in all shapes and sizes

Interjurisdictional scan results: Question 3 What nutrition and/or healthy eating information (e.g., guidelines, direction, advice, best practices) do Canadian jurisdictions outside of Ontario use to support school-based food programs for children and youth aged 4 to 18 years?

Prov	School Food Program	Nutrition Guidelines	2019 CFG? Y/N
AB	<a href="#">Alberta School Food Program</a>	<p><a href="#">Alberta nutrition guidelines for children and youth</a></p> <p><u>Food guidance</u></p> <ul style="list-style-type: none"> <li>-Choose Most/Choose Sometimes/Choose Least</li> <li>-Meal = 4/4 food groups; snack = 2/4 food groups</li> <li>-Emphasize nutrient-rich foods</li> <li>-Choose a variety of foods</li> <li>-Promote consumption of water</li> <li>-Limit foods high in salt/sugar/unhealthy fat</li> <li>-Choose most: vegetables and fruits; whole grains; plain, low-fat dairy; lean meats, beans/lentils/tofu; mixed dishes with ingredients from the four food groups</li> <li>-Choose sometimes: V/F that have been processed or have added fat/sugar/salt; refined grains; higher fat dairy, meat high in salt/sugar/fat; mixed dishes higher in salt/sugar/fat</li> <li>-Choose least: fried foods, sugary cereal, candy, cookies, chips, frozen desserts, fruit drinks</li> </ul> <p><u>Supportive eating environment guidance</u></p> <ul style="list-style-type: none"> <li>-Provide appropriate time and space to eat</li> <li>-Ensure eating area is calm, pleasant atmosphere</li> <li>-Healthy foods are plentiful and visible</li> <li>-Limit availability of less nutritious food</li> <li>-Food choices should reinforce classroom lessons</li> <li>-Acknowledge/respond to hunger and fullness cues</li> <li>-Division of responsibility messaging</li> <li>-Adults should be positive role models</li> </ul>	No

Prov	School Food Program	Nutrition Guidelines	2019 CFG? Y/N
		<ul style="list-style-type: none"> <li>-Use non-food rewards</li> <li>-Celebrate that healthy bodies come in all shapes/sizes</li> </ul>	
BC	No program coordinated at the provincial level	<a href="#">School Meal and School Nutrition Program Handbook</a>  <u>Food guidance</u> <ul style="list-style-type: none"> <li>-Choose Most/Choose Sometimes/Choose Least</li> <li>-Variety</li> <li>-Focus on V/F, grains, milk and alternatives, meat and alternatives (fully aligned with 2007 CFG)</li> <li>-Promote consumption of water</li> <li>-Recommended amounts of foods based on serving sizes in 2007 CFG</li> <li>-Examples of foods that fit into each of the three categories for each food group provided</li> <li>-Guidance around types/quantities of condiments</li> <li>-Sample menus by age provided</li> <li>-Tips for how to boost/reduce intake of key nutrients provided</li> </ul> <u>Supportive eating environments guidance</u> <ul style="list-style-type: none"> <li>-Programs should support social skills development</li> <li>-Respect cultural diversity</li> <li>-Provide sufficient time and space</li> </ul>	No
MB	<a href="#">School Nutrition Programs</a> Supported and coordinated by <a href="#">Child Nutrition Council of Manitoba</a>	<a href="#">Moving Forward with School Nutrition Guidelines</a>  <u>Food guidance</u> <ul style="list-style-type: none"> <li>-Promote consumption of water</li> <li>-Focus on whole foods and minimize ready-to-eat packaged foods</li> <li>-Emphasize vegetables and fruits</li> <li>-Emphasize a variety of non-meat protein choices</li> <li>-Nutrient-based guidance (e.g., fat, trans fat, sodium, sugars, calcium, protein, caffeine, fibre)</li> </ul>	No

Prov	School Food Program	Nutrition Guidelines	2019 CFG? Y/N
		<u>Supportive eating environments guidance</u> -None	
NB	No program coordinated at the provincial level	<a href="#">Healthier School Food Environment Policy 711</a>  <u>Food guidance</u> -Higher Nutritional Value/Lower Nutritional Value (only foods in the Higher Nutritional Value category are permitted) -Promote consumption of water -Meal = 4/4 food groups -Emphasize whole, minimally process foods -Nutrient-based guidance (e.g., saturated fat, sodium, sugar)  <u>Supportive eating environment guidance</u> -Staff create a pleasant and positive eating environment -Adequate time/space to eat -Allow children to listen to and respond to hunger and fullness cues -Staff/volunteers model healthy behaviours -Foods are not used as reward/punishment -Respect for Indigenous cultural food and traditions	
NFLD	No program coordinated at the provincial level	<a href="#">School Food Guidelines</a>  <u>Food guidance</u> -Serve Most/Serve Moderately -Emphasize foods in the four food groups and guidance statements -Limit foods higher in salt/sugar/fat -Serving sizes according to 2007 CFG -Include V/F at every meal/snack -Nutrient-based guidance (e.g., total fat, trans fat, sodium, sugars, iron, fibre,	No

Prov	School Food Program	Nutrition Guidelines	2019 CFG? Y/N
		calcium) -List of foods not to serve  <u>Supportive eating environment guidance</u> -None	
NWT	None	-	-
NS	<a href="#">Provincial Breakfast Program</a>	<a href="#">Food and Beverage Standards for Nova Scotia Schools</a>  <u>Food guidance</u> -Maximum Nutrition/Moderate Nutrition/Minimum Nutrition -Emphasize foods as per guidance in 2007 CFG -Variety -Nutrient-based criteria (e.g., fat, saturated fat, fibre, sodium, sugar) -Serving sizes consistent with 2007 CFG  <u>Supportive eating environment guidance</u> -None	No
NU	None	-	-
PEI	Provincial school food program development in progress	<a href="#">Guide to Food Choices</a>  <u>Food guidance</u> -Serve Most Often/Serve Sometimes/Serve Least Often -Messaging and advice aligned with 2007 CFG -Nutrient-based criteria (e.g., total fat, saturated fat, trans fat, fibre, sodium, sugar)  <u>Supportive eating environment guidance</u> -None	No

Prov	School Food Program	Nutrition Guidelines	2019 CFG? Y/N
QC	No program coordinated at the provincial level (?)	<a href="#">Going the Healthy Route at School</a>  <u>Food guidance</u> -Messaging and advice aligned with 2007 CFG -Meal = 4/4 food groups -Emphasize V/F -Variety -Prioritize whole grain foods, milk, and water -Do not serve sugar-sweetened and artificially sweetened beverages -Do not serve foods with sugar or sugar substitute as the first ingredient -Do not serve French fries and other fried foods  <u>Supportive eating environment guidance</u> -Provide safe eating areas -Make lunch time enjoyable -Make eating areas pleasant and inviting	No
SK	No program coordinated at the provincial level	<a href="#">Healthy Foods for my School</a>  <u>Food guidance</u> -Choose Most Often/Choose Sometimes -Messaging and advice aligned with the 2007 CFG -Emphasizes vegetables and fruits -Nutrient-based criteria (e.g., fat, sodium, sugars, calcium, protein, iron, vitamins A & C) -Variety -Incorporate foods from a variety of cultures  <u>Supportive eating environment guidance</u> -Have healthy foods and beverages in schools all the time	No

Prov	School Food Program	Nutrition Guidelines	2019 CFG? Y/N
		-Make the healthier choice the easier choice by making food look appealing	
YK	No program coordinated at the provincial level	<a href="#">School Nutrition Policy</a>  <u>Food guidance</u> -Inclusive of Indigenous culture -Home-canned products are prohibited -Messaging and advice aligned with 2007 CFG and FNIM CFG  <u>Supportive eating environment guidance</u> -None	No