



## A provincial scan of food environments

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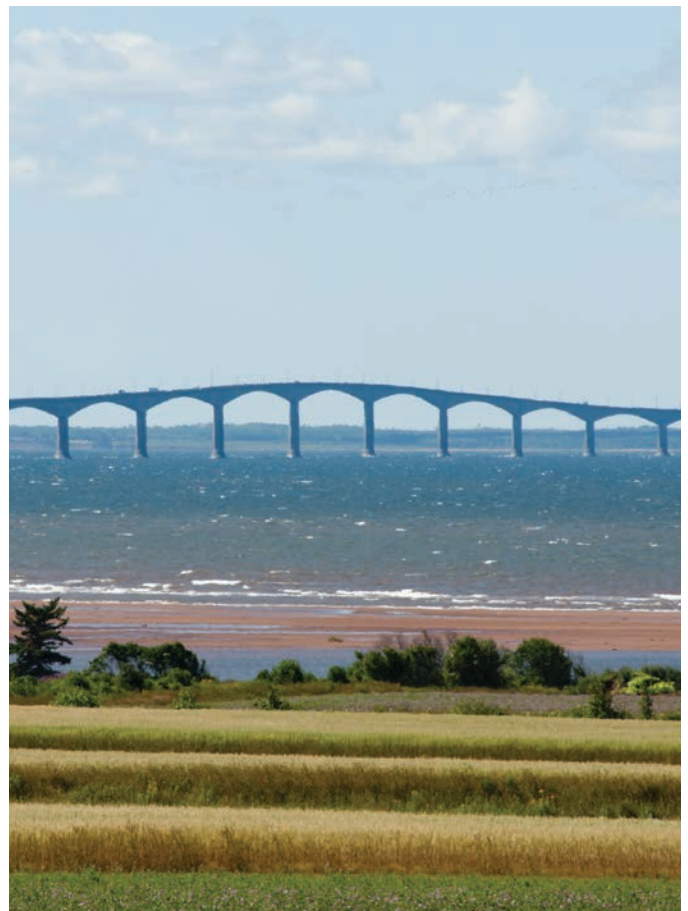
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## Preface

In 2018, the Children's Nutrition Committee did a scan of food and beverage offerings and healthy food practices in recreation settings across Prince Edward Island (PEI). Although scans of the "food environment" in recreation facilities had been conducted in some other provinces, no formal scan had been completed in PEI. As a result of the research conducted, we now have a better understanding of where improvements can be made to the food environment in Island recreation settings.

Our goal in sharing this information is to:

- Increase knowledge and awareness of: (a) the food environment of recreation settings on PEI; and (b) the effect of these environments on child and youth food and beverage choices.
- Create policy change to increase access to healthier food and beverage options in recreation settings.



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# Executive summary

A scan was completed of food and beverage offerings and healthy food practices in recreation facilities across Prince Edward Island (PEI). This research sets a baseline of the food environment that exists within PEI recreation facilities, giving us a better understanding of the issue and areas for improvement. The results of the scan indicated that there is limited availability of healthy food and beverage offerings in PEI recreation facilities.

It is worth noting that there are no federal policies or guidelines for the nutritional content of food and beverages in recreation settings in Canada. While some provinces have implemented nutrition guidelines for recreation facilities, there is evidence that voluntary guidelines are not effective at improving food environments.<sup>1</sup> Therefore, formal policy development and supports are needed at a municipal and/or provincial level to effect change.

The following are **key recommendations**\* to improve access to healthier food and beverage choices in recreation settings:

- **Recreation facilities:** Work with food service and vending machine operators to offer healthier choices (e.g., replace half of unhealthy options with healthier alternatives; ensure food service contracts include healthy eating language; use price incentives; increase visibility of healthy options).
- **Government:** Develop policies to regulate the nutritional content of food and beverages available in public recreation facilities, and provide seed funding for infrastructure to support changes.
- **Health promoting organizations:** Create resources that support decision-makers in initiating changes, and identify champions that can act as role models for creating healthy food environments.

*\*Full details can be found in the 'Recommendations' section of the report*

The PEI Children's Nutrition Committee believes the research gathered demonstrates the **need for an urgent call to action** from stakeholders, including multiple levels of government and community, to **positively influence food environments for children and youth**.

Approximately one third of Canadian youth (aged 5-17 years) are overweight or obese.<sup>2</sup> Eating habits are one of the primary modifiable lifestyle risk factors for childhood obesity, along with physical activity.<sup>3</sup> It has been shown that food environments can create barriers to healthy eating, even when people would prefer to make healthier choices.<sup>4</sup>

Twenty facilities participated, representing facilities of various types from each county (e.g., arenas, swimming pools and multisport complexes). Trained researchers conducted the scan in order to ensure accuracy of data collection.

It was found that 85 per cent of facilities had canteens/concession stands and 70 per cent had vending machines. Over one-third of facilities surveyed had 25¢ candy machines. It is worth noting that vending machines are more accessible than canteens, which have limited hours of operation. The results showed that the nutritional quality of both food and beverage products sold in vending machines was lower than those sold in canteens, highlighting the immediate need for healthier options in vending machines.

In both canteens and vending machines, healthier food and beverages were offered much less frequently than less healthy options. It was identified that 82 per cent of canteens are operated by facility staff rather than a contracted food provider, making it easier to effect change more immediately in terms of food and beverage offerings. However, it must be recognized that staff capacity is often an issue in smaller facilities; therefore any changes must be made within parameters that are feasible for facilities.

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# Current context

Recreation facilities serve as a hub for community-based sport and physical activity. Our scan identified 40 such facilities on PEI. As places where physical activity is encouraged, recreation facilities create the ideal spaces to promote other positive health behaviours, such as healthy eating. However, food and beverages sold in recreation facilities are often high in added sugars, fat and sodium (e.g., sports drinks, chips, french fries, chocolate bars, soft drinks, etc.).<sup>5</sup> **The consumption of such food and beverages is widely linked to negative health outcomes, including rising rates of obesity and chronic disease.**<sup>6</sup>

Approximately one third of Canadian youth (aged 5-17 years) are overweight or obese,<sup>7</sup> and children's risk factors for premature heart disease and stroke, high blood pressure and diabetes are at epidemic levels.<sup>8</sup> Overweight and obesity in children is likely to persist into adulthood and worsen with age. Eating habits are one of the primary modifiable lifestyle risk factors for childhood obesity, along with physical activity.<sup>9</sup>

## Fast facts

**28% of PEI students\* self-report as overweight or obese.**<sup>10</sup> This appears to be an under-report, compared to Canadian data which showed 32% (ages 5-11) and 30% (ages 12-17) as overweight or obese.<sup>11</sup>

28%

**Over the past 70 years, consumption of processed food in Canada has doubled,** from 30% of the average family's food purchases to 60%.<sup>12</sup> Most of the sodium Canadians consume (77%) comes from processed food bought at grocery stores and food service outlets.

PROCESSED  
FOODS

**39% of PEI students\* reported eating vegetables at least once per day;** 43% reported eating fruits at least once daily.<sup>13</sup>

ONCE  
PER DAY

**Over a quarter of Canadian children and youth aged 5 to 19 say they consume sugary drinks daily.**<sup>14</sup>

1/4  
SUGARY  
DRINKS

**89% of PEI students\* reported consuming at least one sugar sweetened beverage,** and 19% reported consuming 3 or more of these beverages, within the 24 hours prior to being surveyed.<sup>15</sup>

24  
HOURS  
PRIOR

*\*Grades 5 to 12 (2014-15 data)*

**Limiting unhealthy food and beverage options in settings where children and youth spend time can positively impact their overall health.**



**“Product positioning can also affect choice, where items placed at eye-level are more likely to be selected.”**

## **Food environments**

Research demonstrates that our environment plays a significant role in what, where, when and how we eat.<sup>16</sup> It has been shown that food environments can create barriers to healthy eating, even when people would prefer to make healthier choices.<sup>17</sup> Availability, combined with affordability, convenience and desirability, make up the main factors affecting our food and beverage choices. External factors, such as marketing, provide a major influence when it comes to desirability.<sup>18</sup> Children and youth are particularly susceptible to food and beverage marketing.<sup>19</sup> Product positioning can also affect choice, where items placed at eye-level in vending machines are more likely to be selected than those placed towards the bottom.<sup>20</sup>

## **PEI's recreation settings**

PEI's recreation food environment findings are consistent with those of other provinces that have undertaken similar scans. The results indicate that initiatives to improve food and beverage offerings, including policy development and supports, are needed. Given the influence of environment on individual food and beverage choices, limiting unhealthy options in settings where children and youth spend time can positively impact their overall health.

## **Policy development**

There are no federal policies or guidelines for the nutritional content of food and beverages in recreational settings. Some Canadian provinces have implemented voluntary nutrition guidelines in these spaces, which have often had a limited effect. There is increasing evidence that such voluntary guidelines are not effective at improving the food and beverage offerings in sport and recreation facilities.

PEI currently has no nutritional guidelines or policies for recreation facilities. Effective nutritional policies must provide appropriate resources to support a lasting change. This may include funding to implement physical changes, knowledge and data to assist in policy adoption, education and enforcement.<sup>21</sup>

# A provincial scan of food environments

## Objectives

- Describe the nature of food operations, food and beverages sold, and food preparation methods;
- Assess the nutritional quality of food and beverages offered for purchase

## Methodology

Twenty facilities participated, representing various types (arenas, swimming pools and multisport complexes). Facilities participating in the scan were from a cross-section of PEI's three counties.

## Data collection

During site visits, facility representatives assisted researchers in locating vending machines and answered questions around food services and food preparation at canteens.

Canteen food and beverage data was logged on the Food Service Audit Form. The Vending Audit Form was used to record brand names, flavours, sizes and prices of food and beverages available for purchase in vending machines. Products were then classified using the Brand Name Food List (BNFL\*). The Vending Audit Form was also used to gather general information on vending machine advertising. In addition, researchers noted the prevalence and contents of candy machines.



*Number of facilities scanned in each county.*

## Scan tools

Both the Food Service and Vending Audit Forms were first developed for use in British Columbia (BC) for the Healthy Living Alliance, and adapted for use in PEI.

A Food Service Audit Form was used to record the food and beverages sold by canteens in recreation facilities. The original tool also allowed researchers to record information about facility operations, food storage and preparation tools, and food promotion and marketing.

A Vending Audit Form was used to record products stocked in on-site vending machines. BNFL\* was used to analyze the products from the Vending Audit. BNFL is an online tool that uses nutritional value to score and label packaged products as "Do not sell"; "Sell sometimes"; and "Sell most".

*\*BNFL: Uses nutrient criteria as outlined in the Healthier Choices in Vending Machines in BC Public Buildings Policy*

The least healthy items  
were categorized as "do not sell"



Moderately healthy items  
were categorized as "sell sometimes"



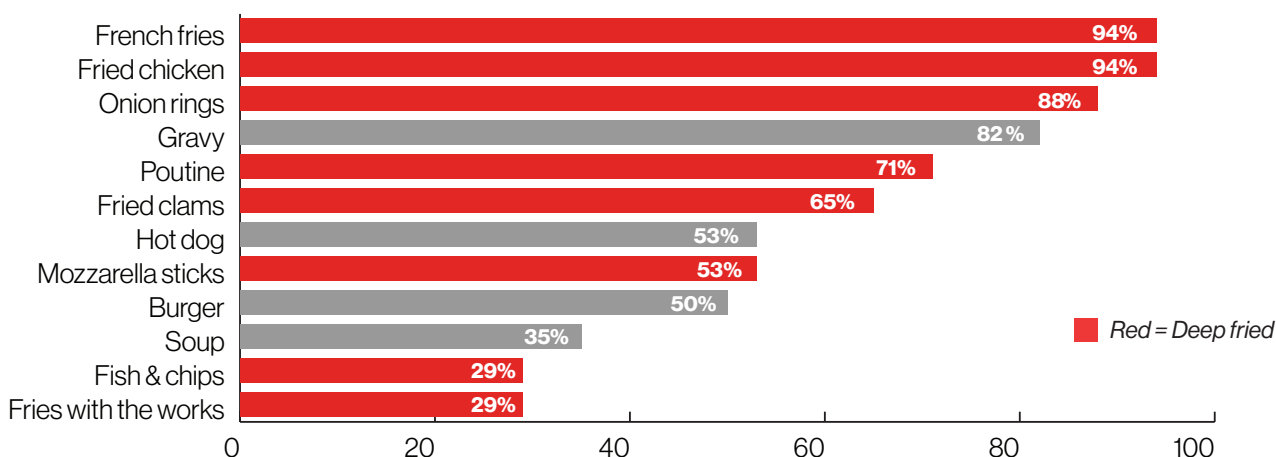
The healthiest items  
were categorized as "sell most"



# Food service scan—results

Of the 20 facilities in the scan, 17 had canteens. Eighty-two percent operated with facility staff (rather than a contracted food provider). One facility had a privately-owned restaurant franchise in place of a canteen and was excluded from the Food Service Scan. Almost a quarter of canteens were open to the general public (take-out style restaurant).

## Percent of canteens offering entrees/sides (n=17 canteens)



## Canteen food

### Within canteens surveyed:

The **3 most frequently stocked** snack and dessert-type foods were: **bars, chips and candy** (>80% of canteens). Fewer canteens (<20%) offered baked goods, including cinnamon rolls, muffins and biscuits, as well as other snack food like cheese and crackers, granola bars or fruit.

**59%** didn't offer fruit

**82%** didn't offer fresh or frozen vegetables (excluding potato products like fries or hashbrowns)

**88%** never offered canned fruits or vegetables

**77%** didn't offer whole grain products. Those that did reported bread and baked goods as the most common types of whole grains offered (e.g., hamburger buns, muffins)

**65%** frequently offered white or chocolate milk (2% milk fat or less); **24%** reported that they do not stock milk



**“8 out of 12** most frequently available entrees and sides in canteens **were deep fried”**

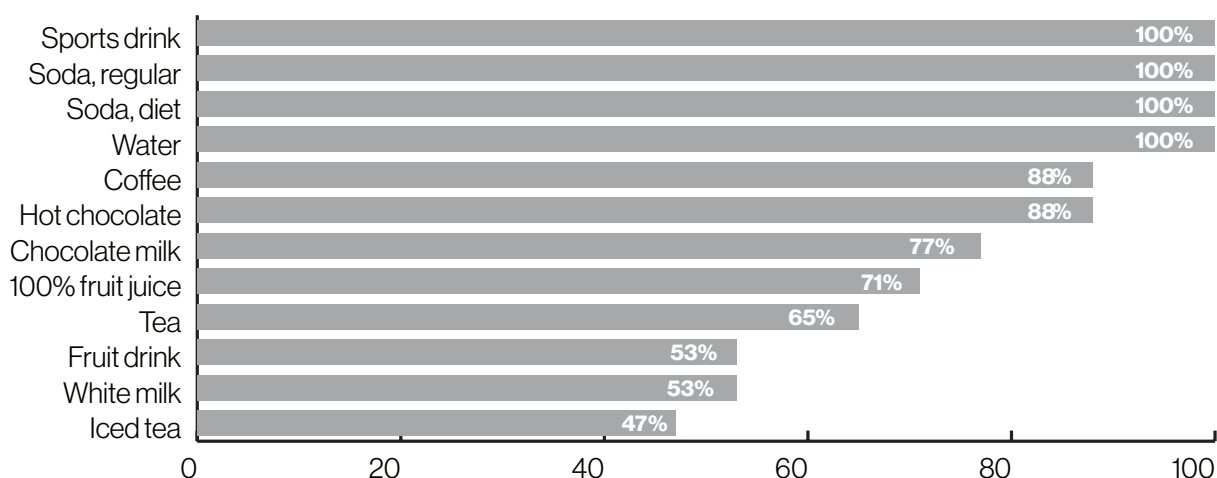
**77%** didn't offer yogurt, while 18% offered it frequently

**65%** used processed cheese products, while only 29% used unprocessed cheese

**88%** didn't offer plant-based proteins (such as lentils, beans or tofu), while two facilities offered these frequently (12%)

**94%** didn't use reduced sodium gravy mixes

### Percent of canteens offering beverages (n=17 canteens)



### Canteen beverages

- **Sports drinks, regular soda, diet soda and water** were sold in **every canteen**
- **Energy drinks** and flavoured water were **not found** in any canteens
- **White milk** was sold **less frequently** than **chocolate milk** (53% vs. 77% of facilities)
- **Other beverages found in canteens included:** hot cider (35%); flavoured coffee drinks (24%); slushies (24%); and fruit smoothies (12%).

**“Beverages commonly sold in canteens were of low nutritional quality —healthier beverage options were found less frequently.”**

### Food storage and preparation tools

- The **most commonly found cooking appliance** in canteens was **deep fryers** (94%). Most facilities had a display refrigerator, as well as a microwave (88%). Likewise, most facilities had freezers for food product storage (82%).
- Ovens (53%), storage refrigerators (53%), toasters (41%) and slow cookers (35%) were the least common. **Only 1 of the surveyed facilities reported having a grill.**

### Food preparation

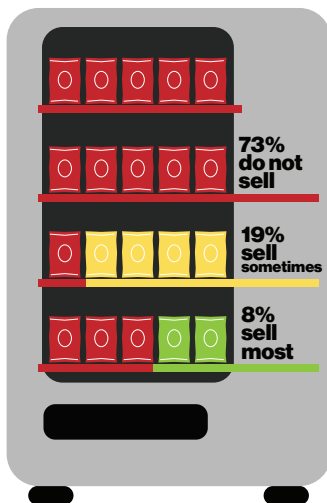
- **88%** of canteens reported that baking, grilling or roasting **never replaced deep fat frying**; **94%** reported **never baking** rather than deep frying breaded products.
- **70% reported never using recipes** that avoid the unnecessary addition of salt, sugar and fat (though this number is artificially high as most facilities surveyed did not use recipes at all — i.e., only commercially-prepared food).



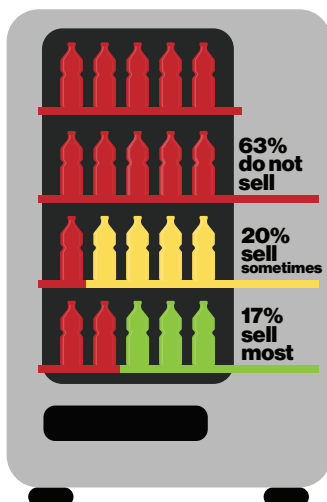
# Vending scan—results

Of the 20 facilities in the scan, 14 had at least one vending machine, seven had 25¢ candy machines, and one facility had a cotton-candy machine. The results below include both food and beverage vending machines. Some of the facilities may have only had vending machines of one type (e.g., beverage-only or food-only).

## Vending machine food



## Vending machine beverages



## Vending machine food

- **Chips** (regular and baked) as well as **bars** and **candy** were found in **43%** of facilities with vending machines
- Other commonly available foods included:
  - Cheese and crackers (29% of facilities)
  - Cookies (29%)
  - Gum (21%)
  - Granola bars, nuts and rice crisps (14%)
  - Fruit snacks, fruit puree and dried fruit (7%)

## Vending machine beverages

- **Sports drinks and water** were found in **100%** of facilities with vending machines
- **Soda** (regular and diet) was found in **64%** of facilities
- **Fruit drinks** (sugar-added) and **flavoured water** (sugar-free) were found in **50%** of facilities
- **100% fruit juice** and **iced tea** were found in **36%** of facilities
- Other available beverages included (14% of facilities):
  - white milk
  - chocolate milk
  - flavored coffee drink
  - sugar sweetened flavoured water

**“Only 2 of 14 facilities** with vending machines **stocked milk** of any kind.”

# Summary — scan results

There is an opportunity to greatly improve the food environment in PEI's recreation facilities. Healthier foods and beverages were offered much less frequently than high fat/salt/sugar, high calorie, low nutrient options. There is a need to offer more healthy choices in both canteens and vending machines. Availability is a key consideration — vending machines are generally more accessible than canteens, which have limited hours of operation. This is important to note because the nutritional quality of both food and beverage products sold in vending machines was less than those found in the canteens. This highlights a specific need for healthier options in vending machines.

**Foods offered in canteens were typically high in fat, high in calories, and low in nutritional quality.** Eight of the twelve most common entrees were deep fried, and therefore likely to have a high fat content. Overall, healthier options were less frequently offered. The most frequently available foods in canteens required minimal preparation and were either shelf-stable or stored in freezers. These heavily processed foods are likely to contain high amounts of sodium, fat and sugar.



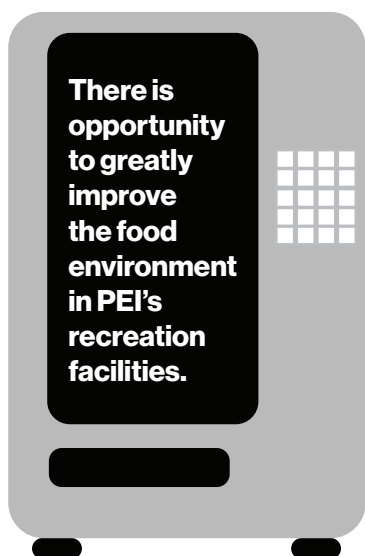
## Food

**While not assessed in this research, some barriers to offering healthier choices in canteens may include:**

- **Food waste:** Guarding against food waste and lost revenue can be a concern due to limited hours of operation, lower customer demand and shorter product shelf life for non-commercially processed food.
- **Cost:** Healthy food items tend to have lower profit margins (potentially leading to lost revenue).<sup>22</sup>
- **Resources:** In many small facilities minimal staff or volunteers are available, preventing the preparation of more labour-intensive food. In addition, staff may not have the appropriate food preparation or food safety skills. Facilities may also lack the appropriate equipment, like ovens or sinks, to make food on-site or to prepare processed foods in healthier ways (e.g., baking vs. deep frying).

Most canteens were operated by staff at the facility (82 per cent). This could be seen as beneficial because outside food providers may prevent improvements to food environments (at least in the short-term).<sup>23</sup>

In vending machines, it was found that commonly available products were high in fat, sugar and sodium, with **73 per cent of food classified as “do not sell.”** Some of the healthiest snack foods were the least commonly available, such as rice crisps, yogurt and fruit puree.



**While not assessed, some barriers to offering healthier choices in vending machines may include:**

- **Food shelf life:** Some healthier options have shorter shelf lives and can translate to lost revenue and food waste (e.g., processed vs. unprocessed cheese; yogurt drinks vs. yogurt cups). Another potential barrier to offering healthier options is infrastructure (e.g., lack of refrigerated vending machines).
- **Product desirability:** Consumer demand, higher prices on healthy options, and product placement can all influence sales. Vending companies can make more profit on the less healthy options.<sup>24</sup> This could explain the lack of shelf-stable options such as: rice crisps, dried fruit and fruit puree, and granola bars.
- **Control of product:** Facilities may have less control over what is offered in vending machines due to management by outside companies.

“Water and sports drinks were **found in 100% of facilities.**”

## Beverages

- **Water** was offered in each facility and energy drinks were not found in any, both positive findings.
- **Flavoured water** was not found in any canteen and was found in about half of facilities with vending machines.
- **Sports drinks**, which are high in added sugars, were found in all facilities in both canteen and vending machines.
- **Soda** (regular and diet) was the next most commonly sold beverage type found in 100 per cent of the canteens and 64 per cent of facilities with vending machines.
- Canteens offered **100 per cent fruit juice** more frequently than fruit-flavoured drinks, which are higher in added sugars; however, this finding was found to be reversed in vending machines.
- **Chocolate milk** was offered more frequently in canteens than white milk (77 per cent vs. 53 per cent). Although chocolate milk is still a good source of calcium, magnesium and vitamin D, it is higher in sugar than white milk. By contrast, only two of 14 facilities with vending machines stocked milk of any kind.



# Limitations

**The following are identified limitations of the research:**

- The time of year the scan was conducted impacted participation of facilities. For example, summer recreation settings were omitted because of when the scan was conducted (September to March). Most of the data was collected from arenas and multisport complexes.
- There was a relatively small sample size of facilities (n=20)
- Some of the data gathered was self-reported (e.g., food preparation methods and food offerings) and there may have been some inaccuracies due to staff's ability to answer questions.
- Using the pre-designed Food Service and Vending Audit Forms allowed for comparing the research to other jurisdictions. However, it may have prevented asking more specific questions to better assess the facility's practices and decision-making (e.g., with respect to food and beverage availability or food preparation methods). It also did not allow for a "not applicable" option, which would have improved results for some variables.
- The Brand Name Food List was only designed for classifying the nutritional content of the products in vending machines, not commercially prepared canteen foods identified in the Food Service Scan. The inability to score canteens in a similar fashion to vending machines was a limitation.
- Some vending scans may have been incomplete due to vending machines not being fully stocked at the time of the scan.



# Recommendations

**The results show a definite need for improvement to the food environment of PEI's recreation facilities. Evidence shows that policies regulating the nutritional content of food and beverages in these facilities has greater potential to effect change over the adoption of voluntary nutrition guidelines.<sup>25</sup>**

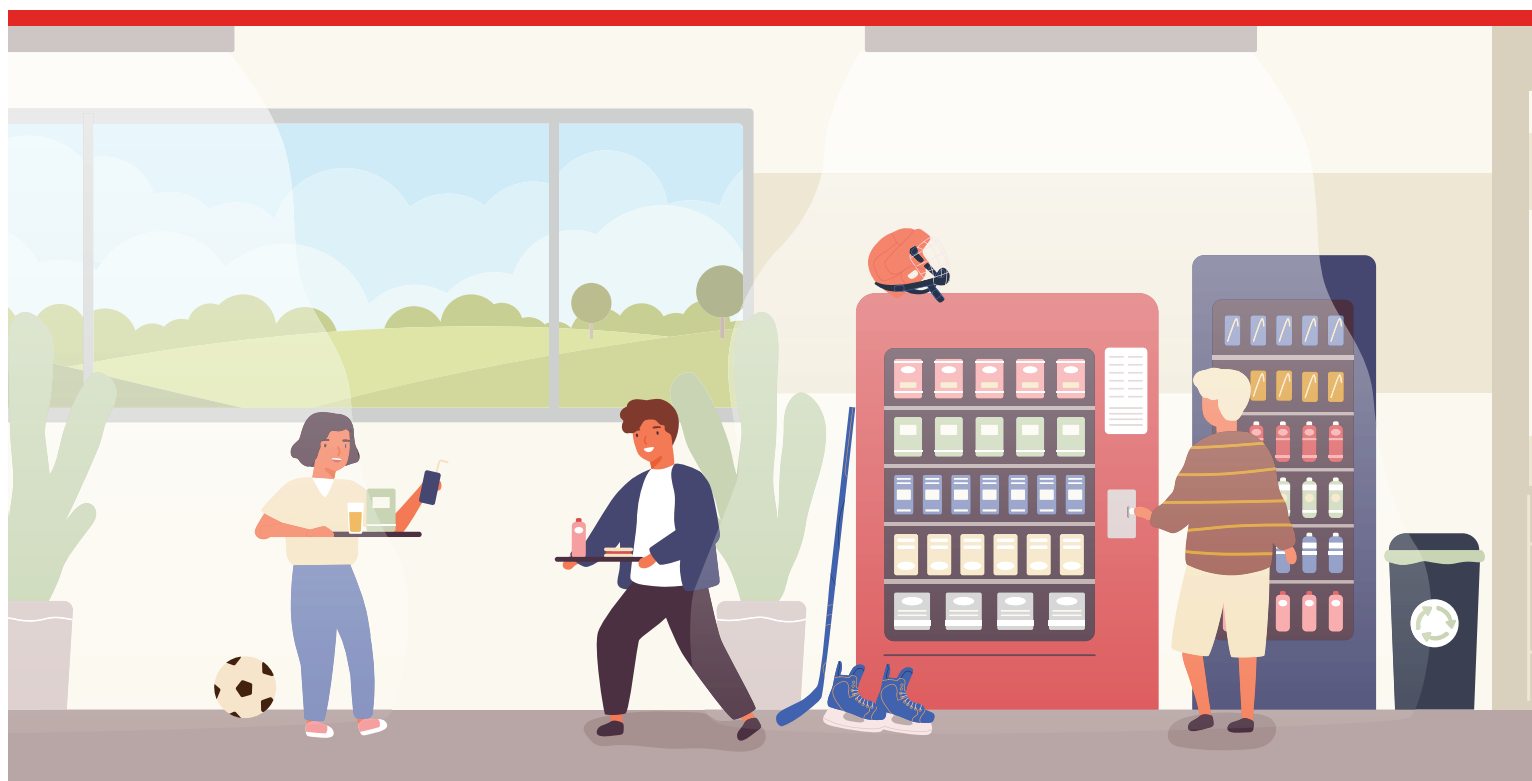
Nutrition policies need to address the following areas to increase likelihood of success:<sup>26</sup>

- Providing an environment that fosters the development of healthy food preferences (i.e., through greater availability/food choices);
- Overcoming barriers to making healthier selections (e.g., pricing, product desirability);
- Encouraging individuals to reassess unhealthy preferences (e.g., through education); and
- Catalyzing overall change in the food system (e.g., by incorporating healthy eating language into all facility operations, such as vending contracts).

Having the appropriate supports in place prior to policy implementation can assist in these areas.

These supports may include:<sup>27</sup>

1. Knowledge transfer and exchange (i.e., data to support changes, such as the results of this scan)
2. Funding to implement physical changes (e.g., water bottle refill stations, sink installations, new cooking tools or appliances, updated menu boards, etc.)
3. Public education (related to product choice)
4. Restriction of commercial marketing of unhealthy foods and beverages to children and youth
5. Incentivized pricing and taxation
6. Enforcement (mechanisms for ensuring compliance)



## Recreation facilities

### 1. Work with food service and vending machine operators to offer healthier options.\*

This can include: healthier snacks that have a longer shelf-life (yogurt cups, pre-packaged cheese cubes, high-fibre and low-sugar granola bars); low-sodium gravy and sauce mixes; whole wheat breads and buns; plant-based proteins; smaller portion sizes for less healthy options; limited sale of sugar sweetened beverages; etc.

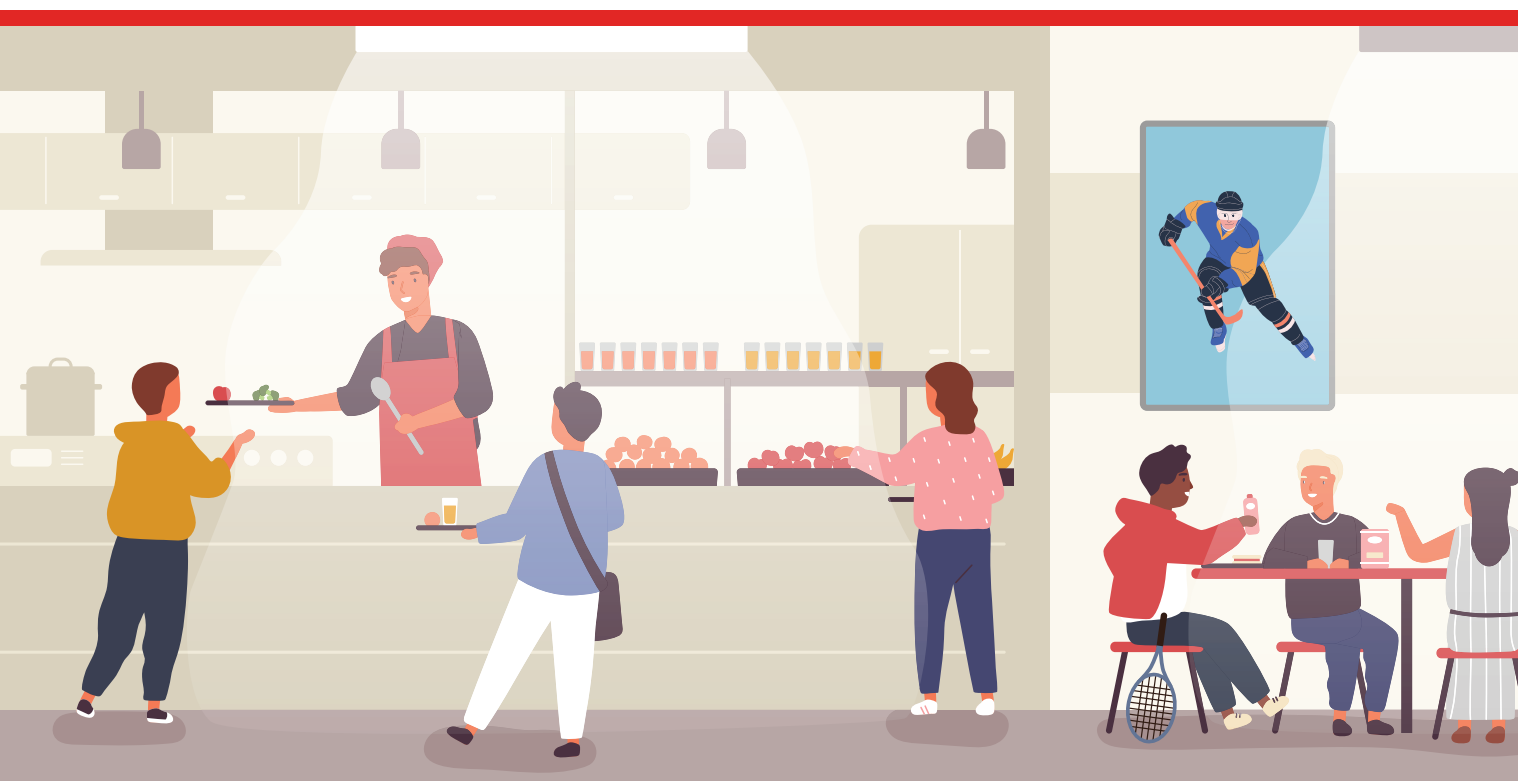
- Ensure that contracts with operators include healthy eating language.
- Consult with a Registered Dietitian regarding food and beverage selection in your facility.
- Remove unhealthy options that are not selling well and replace them with healthier options.
  - Reduce the number of unhealthy options available in each category of food and beverage (e.g., If 6 chocolate bars offered, remove 3 and replace with healthy-alternative granola bars).

- Remove deep fryers from kitchens and encourage healthier cooking methods.
- Replace traditional snack vending machines with refrigerated units that can sell a larger variety of healthier options.
- Add milk-only vending machines.
- Add refillable water bottle stations.
- Remove coin-operated candy machines.

\*It is important to note that rural facilities may have a more limited selection of food service suppliers based on their location, making it more challenging to access healthier options.<sup>28</sup>

### 2. Increase visibility of healthy canteen and vending options.

- Place healthier options in areas of higher visibility (e.g., top half of vending machine or shelf).
- Offer samples or promotions on healthier options.
- If possible, use 'identifiers' (such as stickers and signs) to highlight healthier selections.



### 3. Reduce prices of healthier food and increase prices of less healthy food (and/or larger portion sizes).

- Implement an incentivized pricing strategy; this has been shown to positively impact consumer purchases. Discounts of >10% have been shown to increase sales of healthy food and beverages across all age groups.<sup>29</sup>
- Apply the above pricing strategy to both vending machines and canteens.

### 4. Use this research to lobby for funding to initiate changes, such as:

- Investing in appliances and tools that increase the ability to prepare food in a healthy manner.
- Installing infrastructure to allow for on-site food preparation (e.g., 3 sink minimum for commercial food production).
- Staff and volunteer training in safe food handling.
- Menu boards and signage to highlight healthy food and beverage selections.

### 5. Investigate the possibility of connecting with existing local food systems.

Vending machines, by nature, are more accessible than canteens (which have limited hours of operation). The research found that the **nutritional quality of both food and beverages sold in vending machines was less than those sold in canteens**, highlighting the immediate need for healthier options in vending machines.

## Government

### 1. Establish policies to:

- Regulate the nutritional content of food and beverages available in public recreational facilities, including the development of guidelines for vending machines in public spaces.
- Limit commercial marketing of unhealthy food and beverages in public recreation facilities.

### 2. Provide seed funding to facilities looking to install infrastructure that will allow for healthier options.

- Refillable water bottle stations, temperature-controlled vending machines, kitchen retrofits, appliance upgrades, etc.

## Health promoting organizations

### 1. Create resources to support decision-makers in making positive changes to recreation food environments.

### 2. Identify “champion” facilities that can act as role models for adopting and promoting healthier food and beverage options.

### 3. Conduct ongoing scans and data collection to continually assess the state of food environments in recreation settings.

### 4. Build awareness among recreation facility managers/operators and patrons on the importance of a healthy food environment and healthy eating.

There is no ‘one-size-fits-all’ approach; facilities must be strategic and tackle the areas that make the most sense to achieve small gains, and then build on these successes. Most importantly, everyone plays a role in the overall health of a community and all partners need to contribute in order to create lasting, positive change.

This research demonstrates an urgent need for multiple stakeholders to work together to create healthier food environments in recreation facilities for children and youth.

# Sources

<sup>1</sup>Bauer JM, Reisch LA. (2019). *Behavioural insights and (un)healthy dietary choices: A review of current evidence*. *Journal of Consumer Policy*.

<sup>2</sup>Roberts K., Shields M., de Groh M., Aziz A., & Gilbert J. (2012). *Overweight and obesity in children and adolescents: Results from the 2009 to 2011 Canadian health measures survey*. *Health Rep*. 23(3): 37-41.

<sup>3</sup>Barney, E. (2019). *Food Environments in Recreational Settings: A Provincial Scan of Prince Edward Island* (Unpublished Honours Thesis). University of Prince Edward Island, Charlottetown, Canada.

<sup>4</sup>Hawkes C, Smith TG, Jewell J, Wardle J, Hammond RA, Friel S, Thow AM, Kain Berkovic J. (2015). *Smart food policies for obesity prevention*.

<sup>5</sup>Naylor PJ, Bridgewater L, Purcell M, Ostry A, Suzanne VW. (2010). *Publicly funded recreation facilities: Obesogenic environments for children and families?* *International Journal of Environmental Research and Public Health*, Vol 7, Iss 5:2208.

<sup>6</sup>Public Health Agency of Canada. (2017). *Obesity in Canadian Adults: It's About More Than Just Weight*. <<https://infobase.phac-aspc.gc.ca/datalab/adult-obesity-blog-en.html>>.

<sup>7</sup>Roberts K. et al. (2012).

<sup>8</sup>Heart & Stroke. (2019). *Stop Marketing to Kids Coalition*. Retrieved from <<https://stopmarketingtokids.ca>>.

<sup>9</sup>Barney, E. (2019).

<sup>10</sup>MacDonald, J. & Murnaghan, D. (2016). 2014-2015 SHAPES-PEI: *Student Health Profile data*. <[https://www.princeedwardisland.ca/sites/default/files/publications/eelc\\_shapes\\_2014-15.pdf](https://www.princeedwardisland.ca/sites/default/files/publications/eelc_shapes_2014-15.pdf)>.

<sup>11</sup>Roberts et al. (2012).

<sup>12</sup>Heart & Stroke (2019).

<sup>13</sup>MacDonald & Murnaghan (2016).

<sup>14</sup>Heart & Stroke (2019).

<sup>15</sup>MacDonald & Murnaghan (2016).

<sup>16</sup>Recreation New Brunswick. (2017). *Healthy Eating in Recreation Settings: A Provincial Scan of New Brunswick*. Retrieved from <<https://www.recreationnb.ca/resources/hers-report>>.

<sup>17</sup>Heart & Stroke (2019).

<sup>18</sup>Herforth A., and Ahmed S. (2015). *The food environment, its effects on dietary consumption, and potential for measurement within agriculture-nutrition interventions*.

<sup>19</sup>Bruce A., et al. (2015). *Apples or candy? Internal and external influences on children's food choices*. *Appetite*, 93:31-4.

<sup>20</sup>Bauer & Reisch (2018).

<sup>21</sup>Barney, E. (2019), 12.

<sup>22</sup>Barney, E. (2019), 41.

<sup>23</sup>Barney, E. (2019), 30.

<sup>24</sup>Olstad DL, Vermeer J, McCargar LJ, Prowse RJL, Raine KD. (2014). *Using traffic light labels to improve food selection in recreation and sport facility eating environments*. *Appetite*. 91:329-35.

<sup>25</sup>Barney, E. (2019), 11.

<sup>26</sup>Hawkes et al. (2015); Reilly KL, Nathan N, Wiggers J, Yoong SL, Wolfenden L. (2018). *Scale up of a multi-strategic intervention to increase implementation of a school healthy canteen policy: Findings of an intervention trial*.

<sup>27</sup>Bauer & Reisch (2018); Barney, E. (2019), 12.

<sup>28</sup>Barney, E. (2019), 43.

<sup>29</sup>Grech A, Allman-Farinelli M. (2015). *A systematic literature review of nutrition interventions in vending machines that encourage consumers to make healthier choices*. *Obesity Reviews* 12:1030.



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