



## Development of a Report Card on Healthy Food Environments and Nutrition for Children in Canada



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### ABSTRACT

**Objective:** The purpose of the Report Card on Healthy Food Environments and Nutrition for Children is to assess how current environments and policies in Canada support or create barriers to improving children's dietary behaviours and body weights.

**Method:** In 2014 we reviewed the literature to identify indicators of the quality of children's food environments and related policies. Scoring systems used to monitor and report on progress on a variety of public health activities were consulted during development of a grading scheme. The Report Card was revised following reviews by an Expert Advisory Committee.

**Results:** The Report Card assigns a grade to policies and actions (42 indicators and benchmarks) within 4 micro-environments (physical, communication, economic, social) and within the political macro-environment. Grade-level scores of A through F are assigned that reflect achievement of, supports for, and monitoring of indicator-specific benchmarks. A Canadian Report Card will be released annually starting in 2015.

**Conclusion:** The Report Card is a novel tool to monitor the state of children's food environments and supportive policies, inform stakeholders of the state of these environments and policies, engage society in a national discussion, and outline a policy-relevant research agenda for further study.

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### Introduction

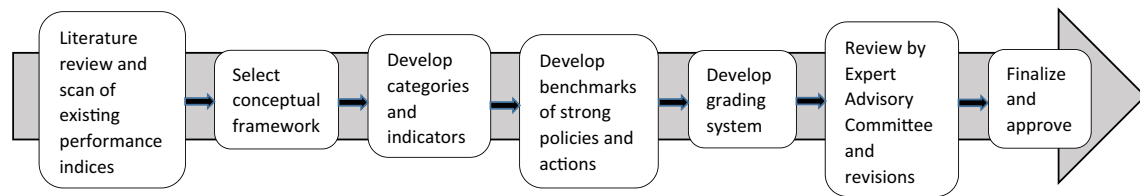
Many children have unhealthy dietary behaviours (Garriguet, 2004, 2008), and these behaviours deteriorate further during the transition from childhood to adolescence (Lytle et al., 2000; Story et al., 2002). Poor dietary quality is an important risk factor for childhood obesity and chronic disease, while healthy diets protect against these conditions (Wang and Lobstein, 2006; World Health Organization, 2003). Environmental exposures including food availability (Rasmussen et al., 2006; van der Horst et al., 2007), marketing (Institute of Medicine, 2006), price (Epstein et al., 2012), and portion size (Osei-Assibey et al., 2012) shape children's dietary behaviours. Dietary patterns established during the early years of life are often sustained into adulthood (Kelder et al., 1994; Lien et al., 2001; Mikkila et al., 2004). Similarly, evidence indicates that children who are overweight are more likely to have unhealthy body weights as adults (Herman et al., 2009). For this reason, childhood represents a critical period in which to establish healthy dietary behaviours that can prevent obesity and chronic disease over the life course.

Despite rising concern about the continued high prevalence of unhealthy dietary behaviours and body weights among children, policy makers have only just begun to formulate legislative responses (Kersh, 2009). The low visibility of these issues on policy agendas may be related to the dominant framing of body weight as a matter of personal responsibility, a frame which points away from robust regulatory interventions (Hilbert et al., 2007; Kersh, 2009; Oliver and Lee, 2005). By contrast, when unhealthy dietary behaviours and body weights are regarded as the consequence of unhealthy environments, a perspective with substantial evidentiary support (Swinburn et al., 2011), robust opportunities for policy interventions emerge.

Causal attributions about obesity and its determinants are strongly associated with support for obesity-related policy (Barry et al., 2009; Hilbert et al., 2007; Oliver and Lee, 2005), making these frames key targets for change. Experience in the area of tobacco control suggests that these attributions are highly malleable (Hilbert et al., 2007; Oliver and Lee, 2005). Benchmarking and publicizing government tobacco control initiatives through performance indices helped to generate support for stronger government policies and actions to reduce tobacco consumption (Mamudu and Glantz, 2009). Since 2005, Active Healthy Kids Canada has leveraged a similar model through its annual Report Card that assesses Canada's efforts to promote and facilitate physical activity among children (Colley et al., 2012; Gray et al., 2014; Tremblay et al., 2014a). The tool has proven to be a powerful means to stimulate

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**Fig. 1.** Process of developing the Report Card on Healthy Food Environments and Nutrition for Children in Canada.

dialogue and action to improve children's physical activity behaviours and environments (Colley et al., 2012).

POWER UP! (Policy Opportunity Windows — Engaging Research Uptake in Practice) is a collaboration among researchers, policy makers and practitioners from the Alberta Policy Coalition for Chronic Disease Prevention, the Association pour la santé publique du Québec and the Department of Health and Social Services of the Government of the Northwest Territories. The collaborative aims to provide leadership and support to develop, implement and evaluate policy activities for chronic disease prevention. Given the success of the Active Healthy Kids Canada Report Card and other performance indices in producing positive, health promoting change, POWER UP! is seeking to build upon, and extend these successful models to the nutritional realm, through an annual Report Card on Healthy Food Environments and Nutrition for Children; hereafter referred to as the 'Report Card'. By collating and publicizing data related to children's food environments and supportive policies, the Report Card will endeavour to initiate a national dialogue to advance an agenda related to childhood obesity prevention.

This paper describes the process of developing the Report Card and presents the final product as an illustration of knowledge-in-action, that is, the process of translating research findings into an engaging and understandable format that is accessible to those best positioned to use them. The Report Card aligns with research worldwide pointing to the need to improve children's food environments through population-level policies and actions (Brennan et al., 2014). Ultimately, the Report Card is intended to stimulate debate and dialogue not only around *what will work*, but *what can and should* be done to ensure that children's food environments support healthy eating, in light of societal priorities, resources, values and beliefs. Development of the Report Card reflects a recognition that progress in obesity prevention can only be achieved in the context of a heightened awareness of the public and policy makers of the state of children's food environments and of the actions needed to improve them.

#### Objective

The purpose of the Report Card on Healthy Food Environments and Nutrition for Children is to increase awareness of the public (including practitioners), and policy makers of the relevance of food environments for health promotion and obesity prevention. It will provide an assessment of how current environments and policies support or create barriers to improving children's dietary behaviours and body weights. More specifically the Report Card aims to:

- 1) *Monitor*: Outline a set of policy-relevant benchmarks that can be used to gauge the state of children's food environments and progress in developing policy over time.
- 2) *Inform*: Communicate findings of the Report Card to the public and policy makers to increase their awareness of how current food environments and policies limit or support children's opportunities to enjoy healthy foods.
- 3) *Engage*: Stimulate a national dialogue on the state of children's food environments and related policies.

- 4) *Study*: Outline a policy-relevant research agenda related to children's food environments.

#### Development of the Report Card (Fig. 1)

##### Organization and framework

Brennan et al. (2011) developed a conceptual framework that depicts how policies and environments interact to shape children's health-related behaviours and body weights. The framework's correspondence with other commonly used food environment-related frameworks (e.g. ANGELO (Swinburn et al., 1999)), grounding in the evidence, and demonstrated utility in the context of a systematic review of factors associated with children's dietary behaviours and body weights (Brennan et al., 2014) supported its relevance and validity in the current context. Four types of micro-environments are outlined: physical, economic, social and communication; with policies embedded within each of these. To this we have added the political macro-environment to provide a category for the infrastructure that supports policies and actions within micro-environments (Swinburn et al., 2013b). Fig. 2 depicts the elements of this adapted framework that guided our work in developing the Report Card.

The structure of the Report Card is organized according to the elements of the conceptual framework into 5 types of environments, with additional subdivisions of categories, indicators and benchmarks.

- **Environments**: 4 micro-environments (physical, communication, economic, social) and the political macro-environment. Within these environments, the 3 major settings of greatest relevance to children are schools, childcare, and community settings.
- **Categories**: Indicators are grouped into broader descriptive categories within each type of environment.
- **Indicators**: Specific domains within each category in which policies and actions will be assessed.
- **Benchmarks**: Benchmarks of strong policies and actions are provided for each indicator.

##### Selection of categories, indicators and benchmarks

We used key word searches and consulted with public health and obesity experts to identify data sources that could inform development of indicators of the quality of children's food environments and supportive policies. Brennan et al.'s (2014) comprehensive overview of policy and environmental strategies to reduce obesity/overweight and improve children's health-related behaviours (Brennan et al., 2014), and the work of the International Network for Food and Obesity/Non-Communicable Disease Research, Monitoring and Action Support (INFORMAS) group (Brinsden et al., 2013; Kelly et al., 2013; Kumanyika, 2013; L'Abbe et al., 2013; Lee et al., 2013; Lobstein et al., 2013; Neal et al., 2013; Ni Mhurchu et al., 2013; Rayner et al., 2013; Sacks et al., 2013; Swinburn et al., 2013a, 2013b), were particularly instrumental. We also relied on a number of other relevant reviews, primary studies (Brescoll et al., 2008; Buhler et al., 2013; Capacci et al., 2012; Chriqui, 2013; Hood et al., 2013; Raine et al., 2012, 2013; Rasmussen et al., 2006; van der Horst et al., 2007; Brinsden et al., 2013; Kelly et al., 2013; Kumanyika,

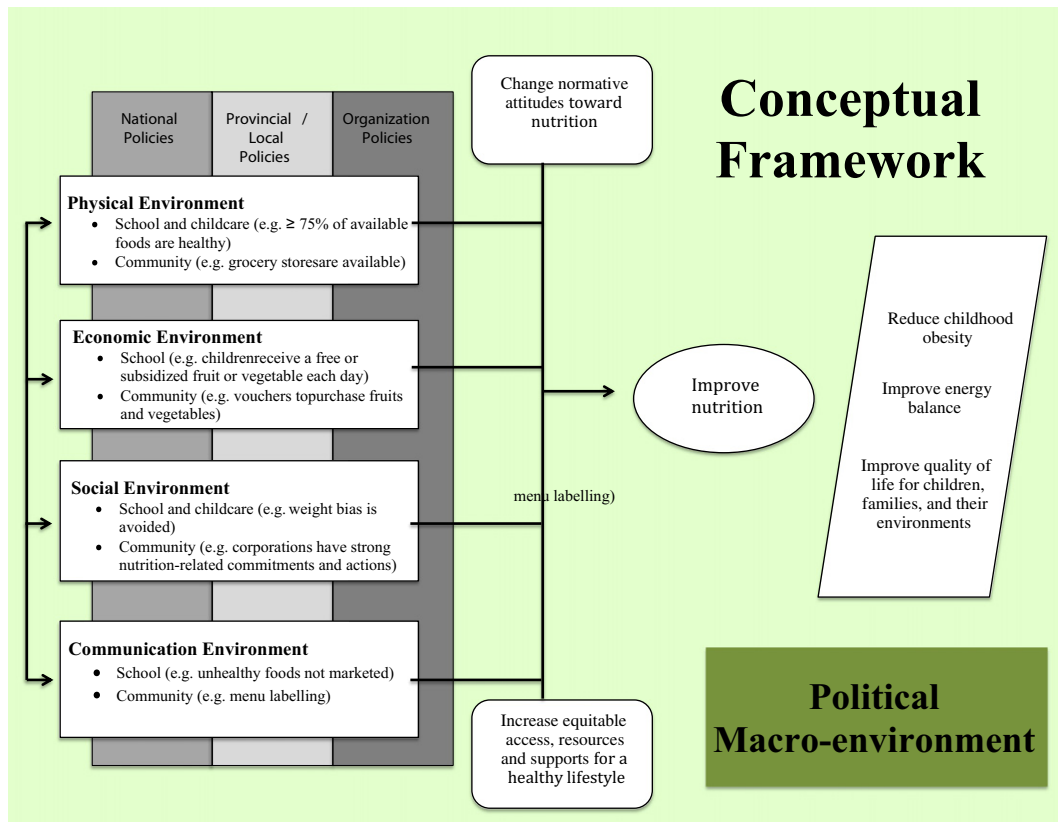


Fig. 2. Conceptual framework, adapted from Brennan et al. (2011). Figure used with permission.

2013; L'Abbe et al., 2013; Lee et al., 2013; Lobstein et al., 2013; Neal et al., 2013; Ni Mhurchu et al., 2013; Rayner et al., 2013; Sacks et al., 2013; Swinburn et al., 2013a, 2013b) and performance indices, including the Institute of Medicine's (2013) indicators for measuring progress in obesity prevention and the Centers for Disease Control and Prevention's (2011) Children's Food Environment State Indicator Report in the US, and the work of Martin et al. (2014) in Australia (Buhler et al., 2013; Raine et al., 2012, 2013) (Brescoll et al., 2008; Capacci et al., 2012; Chriqui, 2013; Hood et al., 2013; Rasmussen et al., 2006; van der Horst et al., 2007). Together, these data sources provided a list of initial indicators for the Report Card.

From this initial list, indicators were subsequently adapted, combined or deleted to fit the purpose, scope, and Canadian context of the Report Card. Selection of indicators was undertaken with the goal of balancing evidentiary and pragmatic concerns, recognizing that the field of food environment research was still largely in its infancy and there are many areas in which the data are limited, but which nevertheless could reasonably be expected to influence children's dietary behaviours and body weights. Indicators from each of the 5 environments were selected based on the following considerations. Indicators had to:

- 1) Relate to policies or actions with potential to influence the dietary behaviours and/or body weights of children aged 3–17 years, their families and communities
- 2) Be policy-relevant and amenable to government influence
- 3) Be feasible targets for data collection, quantifiable, and replicable across settings
- 4) Be supported by evidence of effectiveness and population-level impact (i.e. peer-reviewed studies showing that the indicators influence the dietary behaviours and/or body weights of children)
- 5) Highlight opportunities for intervention and research.

Benchmarks were developed for each indicator describing strong policies and actions that could contribute to achievement of each indicator using the aforementioned data sources and expert judgment. Benchmarks were not intended to fully measure all aspects of each indicator, but to provide a list of quantifiable standards that could realistically be achieved and measured, and were readily understandable by non-academic audiences.

#### Grading system

To develop the grading system we reviewed other performance indices that had been used to monitor and publicly report on progress toward developing and implementing public health policies and/or to improve environmental conditions (Active Healthy Kids Canada, 2014; Centers for Disease Control and Prevention, 2011; Maclellan-Wright et al., 2007; Martin et al., 2014; Swinburn et al., 2013b). Expert Committees were commonly relied upon to complete scoring for these other indices, however the grading schemes they used to do so differed markedly. Given that none of these other indices had the same purpose, scope or types of data as the current Report Card, a somewhat novel grading system was devised for the current Report Card based on expert judgment. The initial system provided a grade-level score of A through F for each indicator that reflected progress toward achieving the benchmark for strong policies and actions in each area.

#### Expert Advisory Committee

An Expert Advisory Committee oversaw the development of the Report Card. The committee included researchers with expertise in nutrition, public health, health law and policy, a member of the Active Healthy Kids Canada Research Work Group, and policy makers and practitioners

**Table 1**  
Categories, indicators, and benchmarks of strong policies and actions within the physical micro-environment.

CATEGORIES AND INDICATORS	BENCHMARKS OF STRONG POLICIES AND ACTIONS
<b>Food availability within settings:</b> Policies and actions that increase availability of healthy foods and limit availability of unhealthy foods in schools, childcare and community settings (including foods served at meals and sold in concessions and vending machines)	
High availability of healthy food	≥75% of available foods are healthy in schools, childcare and community/recreation facilities, including traditional foods in northern communities
Limited availability of unhealthy food	Deep fried foods, high-fat snack foods and sugar-sweetened beverages represent <25% of available options in schools, childcare and community/recreation facilities
High availability of fruits and vegetables	Fast food outlets not present in public buildings Fruits and/or vegetables (prepared with little to no added fat, sugar or salt) available whenever food is offered or sold in schools, childcare and community/recreation facilities
<b>Neighborhood availability of restaurants and food stores:</b> Policies and actions that reduce availability of less healthy types of restaurants and food stores around schools and within communities	
High availability of food stores and restaurants selling primarily healthy foods	The median modified retail food environment index <sup>a</sup> across all census areas is ≥10 The median modified retail food environment index <sup>a</sup> across impoverished census areas is ≥7
Limited availability of food stores and restaurants selling primarily unhealthy foods	Traditional convenience stores (i.e. not including healthy corner stores) and fast food outlets not present within 500 m of schools
<b>Food composition:</b> Policies and actions that ensure that products available in the marketplace are formulated in a healthful manner	
Foods have healthful nutrient profiles	All commercially prepared foods are free of artificial trans fats
Foods contain healthful ingredients	≥75% of children's cereals available for sale are 100% whole grain and contain <13 g of sugar per 50 g serving <sup>b</sup>

Healthy foods are defined as those that meet provincial/territorial standards for a 'healthy' food in established nutrient profiling systems. (e.g. The Alberta Nutrition Guidelines for Children and Youth classify foods as 'Choose most often' (nutrient-dense foods prepared with little to no added fat, sugar, salt), 'Choose sometimes' (foods that contain beneficial nutrients but may be higher in added fat, sugar, salt), or 'Choose least often' (energy-dense, nutrient-poor foods) (Alberta Health and Wellness, 2011)).

<sup>a</sup> The modified retail food environment index is calculated as (Centers for Disease Control and Prevention, 2011):

$$\text{mRFEI} = 100 \times \frac{\# \text{ healthy food retailers}}{\# \text{ healthy} + \text{less healthy food retailers}}$$

The median modified retail food environment index in the US is 10 overall and 7 in impoverished census tracts.

<sup>b</sup> The US interagency working group on foods marketed to children designates cereals as high sugar if they contain more than 13 g of sugar per 50 g of product (i.e. 26% of product by weight) (Interagency Working Group on Food Marketed to Children, 2011).

in public health. The committee felt that the Report Card was comprehensive, however members were concerned that a lack of Canadian data and research capacity would preclude assessment of many indicators. It was therefore recommended to condense the number of indicators and to delay grading of policy implementation until future versions of the Report Card. To encourage positive actions, the committee also recommended adding criteria within the grading scheme to assess whether supports to enable achievement of benchmarks were in place, and whether accomplishment of benchmarks was being monitored. The indicators and grading scheme were revised accordingly, and following another round of reviews by the committee and minor revisions the Report Card was finalized.

## Final Report Card

### Indicators and benchmarks

The final list of indicators and benchmarks is presented in Tables 1–5.

### Grading system

The final grading system provides grade-level scores of A through F that reflect achievement of, supports for, and monitoring of indicator-specific benchmarks (Fig. 3). Lower grades reflect the absence of, or weak policies and actions that are not supported and/or monitored. A grade of incomplete is assigned where data are insufficient to assign a letter grade. To address disparities in food environments, a '+' is assigned to the grade where policies and actions address high-risk populations, such as aboriginal, minority, and low socioeconomic status groups. For indicators that span multiple settings, grades are assigned for each of the 3 public settings of greatest relevance to children: schools, childcare and community settings, and are subsequently averaged to provide an overall grade for each indicator.

**Table 2**

Categories, indicators, and benchmarks of strong policies and actions within the communication micro-environment.

CATEGORIES AND INDICATORS	BENCHMARKS OF STRONG POLICIES AND ACTIONS
<b>Nutrition information at the point-of-purchase:</b> Policies and actions that ensure that nutrition information and/or logos or symbols identifying healthy foods is available at the point-of-purchase in food retail settings (e.g. restaurants, school cafeterias)	
Menu labelling is present	A simple and consistent system of menu labelling is mandated in restaurants with ≥20 locations, vending machines and throughout all schools, community/recreation facilities and hospitals
Shelf labelling is present	Major grocery chains with ≥20 locations provide government-sanctioned logos/symbols on store shelves to identify healthy foods
Product labelling is present	A simple, evidence-based, government-sanctioned front-of-package food labelling system is mandated for all packaged foods
Product labelling is truthful	Strict government regulation of all health and nutrition claims on package labels. Industry-devised logos denoting 'healthy' foods not permitted.
<b>Food marketing:</b> Policies and actions that support marketing of healthy foods and reduce/eliminate all forms of marketing of unhealthy foods to children (<18 years)	
Government-sanctioned public health campaigns encourage children to consume healthy foods	Child-directed social marketing campaigns for healthy foods
Restrictions on marketing unhealthy foods to children	All forms of marketing unhealthy foods to children are prohibited, including a ban on inclusion of toys in children's restaurant meals
<b>Nutrition education:</b> Policies and actions that ensure children and those who work with children in schools and childcare settings receive nutrition education	
Nutrition education provided to children	Nutrition is a required component in the health curriculum at all grade levels
Nutrition education and training provided to teachers and childcare workers	Nutrition education (provided by recognized experts) is a requirement for teachers and childcare workers during their initial training, and biennially thereafter as part of professional development

Healthy foods are defined as those that meet provincial/territorial standards for a 'healthy' food in established nutrient profiling systems (e.g. the Alberta Nutrition Guidelines for Children and Youth classify foods as 'Choose most often' (nutrient-dense foods prepared with little to no added fat, sugar, salt), 'Choose sometimes' (foods that contain beneficial nutrients but may be higher in added fat, sugar, salt), or 'Choose least often' (energy-dense, nutrient-poor foods) (Alberta Health and Wellness, 2011)).

**Table 3**

Categories, indicators, and benchmarks of strong policies and actions within the economic micro-environment.

CATEGORIES AND INDICATORS	BENCHMARKS OF STRONG POLICIES AND ACTIONS
<b>Financial incentives for consumers:</b> Policies and actions that modify food prices to increase sale of healthy foods and reduce sale of unhealthy foods in retail settings	Healthy foods are exempt from point-of-sale taxes
Lower prices for healthy foods	Transportation of healthy, culturally appropriate foods to isolated northern communities is subsidized at a level that ensures that they are affordable for local populations. Mechanisms are in place to ensure cost-savings are passed onto consumers.
Higher prices for unhealthy foods	A minimum excise tax of \$0.05/100 mL is applied to sugar-sweetened beverages sold in any form
<b>Financial incentives for industry:</b> Policies and actions that encourage corporations to produce and sell healthy foods	
Incentives to produce/sell healthy foods	The proportion of corporate revenues earned via sales of healthy foods is taxed at a lower rate
Disincentives to produce/sell unhealthy foods	The proportion of corporate revenues earned via sales of unhealthy foods is taxed at a higher rate
<b>Government nutrition assistance programs:</b> Policies and actions that ensure that low-income families can afford to purchase a nutritious diet	
Reduce childhood food insecurity	Reduce the proportion of children accessing food banks and living in food insecure households by 25%
Nutritious food basket is affordable	The contents of the nutritious food basket <sup>a</sup> align with dietary recommendations and social assistance rates provide sufficient funds to purchase its contents
Financial incentives to purchase healthy foods	Social assistance recipients receive monthly vouchers to purchase fruits and vegetables
Subsidized fruit and vegetable subscription program in schools	Children in elementary school receive a free or subsidized fruit or vegetable each day

Healthy foods are defined as those that meet provincial/territorial standards for a 'healthy' food in established nutrient profiling systems (e.g. the Alberta Nutrition Guidelines for Children and Youth classify foods as 'Choose most often' (nutrient-dense foods prepared with little to no added fat, sugar, salt), 'Choose sometimes' (foods that contain beneficial nutrients but may be higher in added fat, sugar, salt), or 'Choose least often' (energy-dense, nutrient-poor foods) (Alberta Health and Wellness, 2011)).

<sup>a</sup> The Nutritious Food Basket describes the quantity of approximately 60 foods that purports to represent a nutritious diet for Canadians (Health Canada, 2009).

### Assigning Report Card Grades (Fig. 4)

A Report Card Secretariat will collect data on policies and actions related to each indicator on an annual basis. For each province/territory, the secretariat will conduct key word searches of the peer-reviewed and grey literature, supplemented by key word searches of policy databases (e.g. CanLII, LexisNexis) government, institutional and non-governmental organization websites and policy documents to identify the best available evidence from research, surveillance, policy and practice. Relevant experts (identified by members of the Expert Advisory Committee) within each province's academic institutions, government officials and other key informants (e.g. school superintendents, municipal council members) will be contacted to identify additional data sources. A number of data sources have already been identified. For instance, the Breastfeeding Committee for Canada collates data regarding the Baby-Friendly Initiative in Canada (Breastfeeding Committee for Canada, 2014), while the Pan-Canadian Public Health Network maintains a website to update actions taken by government and other sectors to advance the Federal/Provincial/Territorial Framework on Healthy Weights (Pan-Canadian Public Health Network, 2013). Two reviewers will extract evidence related to each of the indicators using standardized forms developed by the research team. In some cases, data may also be collected by POWER UP! team members.

An Expert Working Group will review the data for each indicator and assign a final grade for each indicator once a group consensus is reached. Scores for each indicator will be averaged to produce an overall grade

**Table 4**

Categories, indicators, and benchmarks of strong policies and actions within the social micro-environment.

CATEGORIES AND INDICATORS	BENCHMARKS OF STRONG POLICIES AND ACTIONS
<b>Weight bias:</b> Policies and actions that ensure that all children are treated equally regardless of weight status in schools and childcare settings	
Weight bias is avoided	Weight bias is explicitly prohibited in schools and childcare
<b>Corporate social responsibility:</b> Policies and actions that encourage industry to produce/sell/market healthy foods	
Corporations have strong nutrition-related commitments and actions	All corporations in the Access to Nutrition Index <sup>a</sup> with Canadian operations achieve a score of $\geq 5.0$ out of 10.0
<b>Breastfeeding support:</b> Policies and actions to encourage breastfeeding in community settings	
Breastfeeding is supported	Public buildings are required to permit and promote breastfeeding
Hospitals support and promote breastfeeding	All hospitals with labour and delivery units and all pediatric hospitals and public health centres are designated as WHO baby-friendly hospitals <sup>b</sup>

Healthy foods are defined as those that meet provincial/territorial standards for a 'healthy' food in established nutrient profiling systems (e.g. the Alberta Nutrition Guidelines for Children and Youth classify foods as 'Choose most often' (nutrient-dense foods prepared with little to no added fat, sugar, salt), 'Choose sometimes' (foods that contain beneficial nutrients but may be higher in added fat, sugar, salt), or 'Choose least often' (energy-dense, nutrient-poor foods) (Alberta Health and Wellness, 2011)).

<sup>a</sup> The Access to Nutrition Index ranks 25 of the world's largest manufacturers on their nutrition-related commitments, practices and performance (Access to Nutrition Index, 2013).

<sup>b</sup> The WHO Baby Friendly Hospitals Initiative provides standards for being designated a WHO Baby Friendly Hospital (World Health Organization, 1991).

for each of the 5 environments, and for the Report Card as a whole. Key considerations will include the quality of the data, longitudinal trends, evidence of socioeconomic and other disparities, and international comparisons (Colley et al., 2012). The group will also highlight key findings from the evidence review, formulate recommendations for future policies and actions, and identify research gaps.

### Format of the Report Card

Report Cards will initially be developed for the Canadian provinces of Alberta and Quebec and the Northwest Territories on an annual basis. Once a critical mass of Canadian provinces/territories has adopted the Report Card, a national Report Card will be produced. Given the success of the Active Healthy Kids Canada Report Card, a similar format will be adopted. A summary and expanded version will be produced in English and French, in electronic and printed formats. The full version of the Report Card will provide a grade for each indicator and overall, followed by a summary of the key findings, recommendations and research gaps related to each area. Case studies will be presented to high-light jurisdictions with exemplary practices in specific domains.

### Disseminating the Report Card

To be successful, the Report Card must effectively communicate evidence regarding the state of children's food environments to a broad range of stakeholders in the public and private sectors. The key target audiences for the Report Card are policy makers and the public, which includes practitioners and other non-government stakeholders. Engaging these actors in a national dialogue is a key priority of the Report Card, and thus a variety of targeted knowledge exchange strategies will be needed, including many already in use by Active Healthy Kids Canada (Colley et al., 2012; Tremblay et al., 2014a):

- Publication of the full Report Card and summary versions on the POWER UP! website
- Linkages with stakeholder organizations to distribute the Report Card
- One-page fact sheets posted online and distributed via partner

**Table 5**  
Categories, indicators, and benchmarks of strong policies and actions within the political macro-environment.

CATEGORIES AND INDICATORS	BENCHMARKS OF STRONG POLICIES AND ACTIONS
<b>Leadership and coordination:</b> Governments provide clear, comprehensive, transparent goals and action plans to improve children's dietary behaviours and body weights	A comprehensive, evidence-based childhood healthy living/obesity prevention strategy/action plan is endorsed by the government. Priority is given to reducing disparities in dietary behaviours and body weights within the plan.
Childhood healthy living/obesity prevention strategy/action plan	Evidence-based population targets for childhood dietary behaviours and body weights exist
Population targets for childhood dietary behaviours and body weights	Representatives from all sectors and government departments are active participants in policy development and implementation in matters related to child health. The food industry participates in policy implementation, but not in its development.
Broad consultation on matters related to child health	Conflict of interest guidelines restrict commercial influence in matters related to child health
Conflict of interest guidelines for matters related to child health	Health Impact Assessments are conducted in all government departments on policies with potential to impact child health
Health-in-all policies	Health Impact Assessments are conducted in all government departments on policies with potential to impact child health
<b>Funding:</b> Sufficient funds are allocated to the implementation of the government's childhood healthy living/obesity prevention strategy/action plan	At least 1% of the health budget dedicated to implementation of the government's childhood healthy living/obesity prevention strategy/action plan
Childhood health promotion activities adequately funded	At least 1% of government health-related research funds dedicated to healthy eating/obesity prevention in children
Healthy eating/obesity prevention in children is a priority for research funding	At least 1% of government health-related research funds dedicated to healthy eating/obesity prevention in children
<b>Monitoring and evaluation:</b> Progress toward achieving population-level dietary and body weight targets is regularly monitored along with the policies and programs enacted in support of these	Ongoing evaluation of the impact of policies and actions associated with the childhood healthy living/obesity prevention strategy/action plan
Impact of policies and actions to improve children's dietary behaviours and body weights regularly assessed	Biennial population-level surveillance of children's dietary behaviours and body weights in all provinces and territories
Surveillance of children's dietary behaviours and body weights	Mechanisms are in place to monitor adherence to mandated nutrition policies
Compliance monitoring	Personnel are in place with responsibility to oversee the childhood healthy living/obesity prevention strategy/action plan
<b>Capacity building:</b> Personnel and resources are available to support the government's childhood healthy living/obesity prevention strategy/action plan	Personnel are in place with responsibility to oversee the childhood healthy living/obesity prevention strategy/action plan
Supportive personnel are available	A website and other resources exist to support achievement of the childhood healthy living/obesity prevention strategy/action plan
Supportive resources are available	Adoption and dissemination of an evidence-based food rating system for foods served to children and tools to support its application
Food rating system for foods served to children exists	Adoption and dissemination of population-level dietary guidelines for children and resources to support their application
Dietary guidelines for children exist	Adoption and dissemination of population-level dietary guidelines for children and resources to support their application
Training to assist the public and private sectors to comply with nutrition policies	Training (delivered by qualified personnel) is available free of charge to assist the public and private sectors to comply with nutrition policies

- organizations and a web-based network to parents and caregivers
- Policy briefings and a summary of initiatives that could improve the grade achieved will be sent to key decision makers
- Peer-reviewed scientific publications
- Press releases and key messages distributed using broadcast, print, and digital media platforms; social media will be used to ensure that communications are bi-directional
- Media and public toolkits posted online (e.g. press releases, sample social media messages, presentations)
- Expert meetings to summarize the process of developing the Report Card and key findings
- Presentations for all types of audiences
- Designated media spokespersons in key regions of each province/territory.

The Report Card will be released in March of each year to coincide with Nutrition Month in Canada, thereby capitalizing on the heightened media attention to nutrition during this month. Following the Active Healthy Kids Canada model, a cover story will be developed each year highlighting novel findings and implications for action/policy (Gray et al., 2014). Funds are in place to complete these activities for the first 2 years of production (via funding from the Canadian Partnership Against Cancer), however novel funding sources may be required beyond this period to support ongoing production and dissemination of the Report Card.

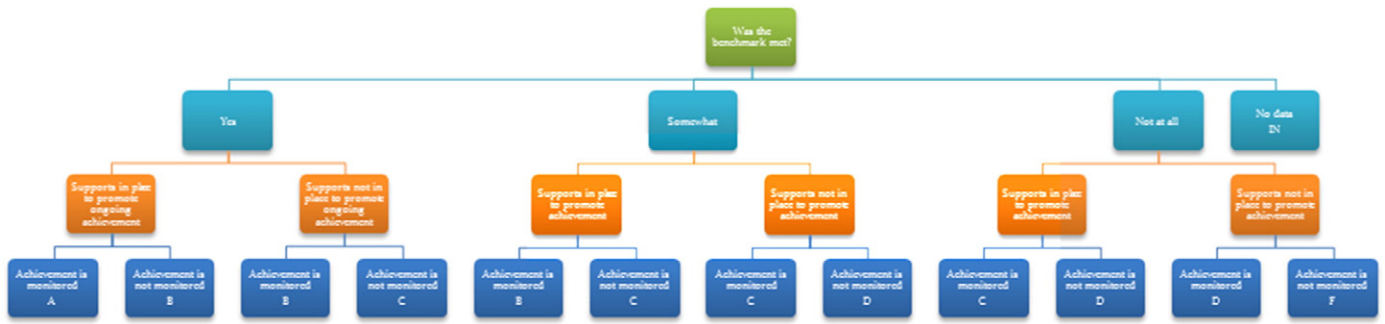
The success of the knowledge exchange strategy will be monitored by calculating the number of media hits and impressions received, the number of times the Report Card is downloaded, the number and geographic distribution of hard copies of the Report Card, and the number of times the Report Card is cited in the peer-reviewed and grey literatures, in press releases, media and magazine articles and other documents (Tremblay et al., 2014a). We will also conduct surveys, focus groups and interviews to assess knowledge, attitudes and beliefs of

policy makers and the public related to the role of food environments and policies in obesity prevention and to assess knowledge of, and use of the Report Card (Tremblay et al., 2014a).

## Discussion

The epidemic of childhood obesity demands strong action to tackle the environmental drivers of unhealthy dietary behaviours and body weights among children. Nevertheless, there has been limited translation of research on the environmental drivers of obesity-related behaviours into public policies in Canada and other nations (Capacci et al., 2012; Chiqui, 2013; Fulponi, 2009; McGuffin et al., 2013). That scientific evidence should inform policy is self-evident, however the assumption that evidence is sufficient to inform policy is not consistent with the realities of policy making (Greenhalgh et al., 2009). Indeed, the impetus for policy change often begins within society (Kersh and Morone, 2002), and public opinion defines the boundaries of policy debates (Oliver and Lee, 2005). Policy making is perhaps best characterized as a discursive process of incremental decision making that relies on subjective judgment to make context-sensitive choices in the midst of uncertainty and competing values (Greenhalgh and Russell, 2009; Lindholm, 1959).

It is this complex process of policy making that the Report Card aims to catalyze and inform. Specifically, the Report Card attempts to bridge the evidence-to-action gap that exists with respect to children's food environments by highlighting the environmental drivers of unhealthy dietary behaviours, proposing a broad portfolio of evidence-based strategies that might feasibly improve these environments, and injecting these into the public realm for contemplation, dialogue and debate. In this way, the Report Card moves beyond traditional approaches to knowledge translation that rely on 'pushing' evidence to policy makers in an attempt to encourage uptake (Dearing and Kreuter, 2010).



**Fig. 3.** Report Card on Healthy Food Environments and Nutrition for Children in Canada grading scheme. IN = incomplete, data are too limited to assign a grade. If actions related to benchmarks address the specific needs of high-risk populations (eg. aboriginal, minority and low socioeconomic status groups) add a '+' to the grade. Definition/application of key terms: Benchmarks may be met through policies/actions that have not been enacted for nutrition-related reasons (e.g. taxes imposed for revenue generation rather than to promote healthy eating). Supports can include, but are not limited to: plans, policies, guidelines, training, financial resources, human resources, equipment and other materials, written instructions, background documents, evidence reviews, and incentives/disincentives. Monitoring involves formal evaluation by government that is documented, and involves consequences for non-compliance. For monitoring of actions and policies within the political environment only, monitoring can include efforts by arms-length government agencies, NGOs or other organizations to hold the government to account if there is a formal and regular program of monitoring in place.

Instead, the Report Card aims to elicit a policy 'pull' (Dearing and Kreuter, 2010) from policy makers and the public, by catalyzing discussion around not only *what will work*, but what *can and should* be done to ensure that children's food environments promote health, in light of societal priorities, resources, values and beliefs.

The movement from discussion of 'what works', to what can and should be done is central to policy making, and requires a high degree of stakeholder engagement (Swinburn et al., 2005). The Report Card is a novel tool in this respect. First, it presents information in a highly engaging, and understandable manner, distilling complex research findings into a simple menu of evidence-based strategies and assigning a 'grade' for achievement of each one. Second, it provides a means not only to identify areas for improvement, but to recognize and celebrate champions who are creating healthy food environments for children and to highlight best practice examples that other jurisdictions can emulate. Finally, its key messages will be communicated not only to policy makers, but also to their constituents. This engaging format, along with the substantial public and media discussion generated around both positive and negative findings will increase the salience of the Report Card's content through relevance to current debates (Sacks et al., 2011), and by ensuring that its messages are conveyed through multiple channels. In this way, the Report Card will help to ensure that creating healthy food environments for children becomes a societal priority.

*A portfolio approach*

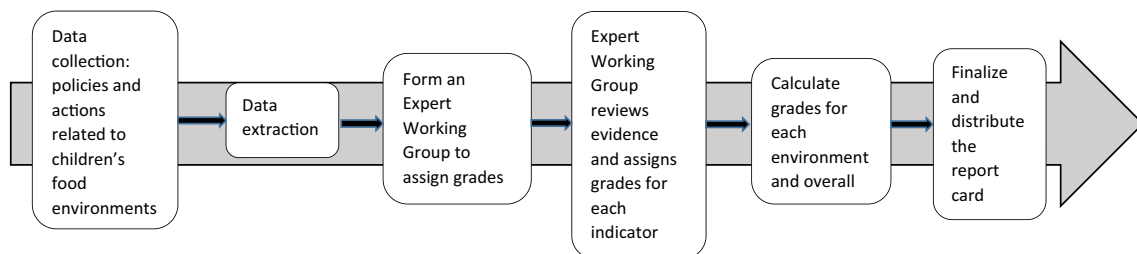
Although the evidence base is growing as to which environmental and policy changes are likely to be most effective, no country has succeeded in containing or reversing the childhood obesity epidemic, and thus definitive solutions remain elusive (Swinburn et al., 2005). Some have suggested a portfolio approach to public health in which highly effective interventions that are expected to yield benefits for

some sub-groups are balanced with strategies for which the evidence base is more limited, but that have potential to favourably impact the health of entire communities (Hawe and Shiell, 1995; Swinburn et al., 2005). This approach also recognizes that success in obesity prevention cannot be achieved through any single strategy, and that a series of synergistic interventions with modest impacts can have significant impacts at a population level. Accordingly, the Report Card assesses progress toward implementing a mix of strategies with varying impact and effectiveness ratings (Brennan et al., 2014). The Report Card is not intended to exhaustively document the state of children's food environments, but rather to provide a representative snapshot of key levers for change within them.

*Limitations, future plans and challenges*

We did not use systematic search methods to identify data sources for the indicators. However, our literature searches yielded a recent, rigorous, and comprehensive overview of policy and environmental strategies to reduce obesity/overweight and improve children's health-related behaviours, as well as the work of the INFORMAS group related to benchmarking food environments and related policies. These and other data sources provided a robust theoretical and practical underpinning for our work. The Report Card's grading scheme was developed by experts in the field, however it has not been validated. Final grades will be assigned by an Expert Committee on the basis of the data that are collected, and may therefore be influenced by the quality and comprehensiveness of the available data and the subjective opinions of committee members.

The format and content of the Report Card will evolve over time as lessons are learned through its application and as new evidence emerges. A lack of Canadian data in several areas precluded adoption of the original, more comprehensive set of indicators, and also



**Fig. 4.** Process of assigning grades for the Report Card on Healthy Food Environments and Nutrition for Children in Canada.

prevented evaluation of policy implementation at this early stage. It is hoped that the original set of indicators can be adopted in the future. It is not clear whether this particular 'menu' of indicators will be useful in other nations, however given that they were selected from international sources, they may be broadly relevant. Alternatively, other nations could adapt the Report Card to suit their own contexts. Notably, although developed for the Canadian context, the Active Healthy Kids Canada Report Card was recently used to benchmark progress in areas related to children's physical activity in 15 nations, including low-middle income countries (Tremblay et al., 2014b). Information sharing among nations participating in a similar cross-country comparison of food environment Report Cards could facilitate the development of strategies to improve Canada's scores. Annual release of the Report Card is important to track trends over time and to build upon momentum generated by previous releases. A major challenge will therefore be to make the case that annual production of the Report Card should be funded on an ongoing basis. An evaluation strategy has been planned to that end to highlight key outcomes.

## Conclusions

The absence of a central repository of information related to the quality of children's food environments and supportive policies, and of an engaging means to communicate this information to the public and policy makers is a major impediment to advancing an agenda related to childhood obesity prevention forward. If the public and policy makers are not aware of the state of children's food environments, of key levers for change, or of best practice examples, then they cannot initiate policies and actions to improve them. The Report Card on Healthy Food Environments and Nutrition for Children is a novel tool to *monitor* the state of children's food environments and supportive policies, *inform* stakeholders of the state of these environments and policies, *engage* society in a national discussion, and outline a policy-relevant research agenda for further *study*. Thus, the Report Card is at once informational and aspirational, in terms of providing a policy and research agenda. It furthermore acknowledges that the responsibility for creating healthy food environments does not rest solely with governments on the one hand, nor individuals on the other, as the energy, resources and expertise of all sectors are vital (World Health Organization, 2004, 2013). Over time it is anticipated that the Report Card will help to alter societal expectations of the food environments in which children are regularly present, and support efforts to make the healthy choice the easy choice for children.

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## Conflict of interest statement

The authors declare that there are no conflicts of interest.

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