

Policies to protect children from the harmful impact of food marketing

WHO guideline



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ISBN 978-92-4-007541-2 (electronic version)

ISBN 978-92-4-007542-9 (print version)

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Cataloguing-in-Publication (CIP) data. CIP data are available at <http://apps.who.int/iris>.

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Contents

Acknowledgements	v
Abbreviations	vi
Glossary	vii
Executive summary	ix
Background	ix
Objective, scope and methods	ix
The evidence	x
Good-practice statement and recommendation	xi
Key considerations for implementation	xiii
1. Introduction	1
1.1 Background	1
1.2 Scope and purpose	3
1.3 Objectives	5
1.4 Target audience	5
2. How this guideline was developed	6
2.1 Contributors to guideline development	6
2.2 Guideline development process	7
2.3 Management of conflicts of interest	11
3. Summary of evidence	13
3.1 Evidence on the nature, extent and impact of food marketing	13
3.2 Evidence on effectiveness of policies to restrict food marketing to which children are exposed	16
3.3 Evidence on contextual factors	20
4. Good-practice statement and recommendation	22
5. Implementation considerations	27
6. Research gaps	31
6.1 Overarching research gaps	31
6.2 Considerations for design of future evaluations	32
7. Uptake, monitoring and updating of the guideline	34
References	35

Annexes

Annex 1.	Global calls to action and commitments related to food environment policies	43
Annex 2.	WHO Secretariat	44
Annex 3.	Members of the WHO Steering Committee (headquarters)	45
Annex 4.	Members of the WHO NUGAG Subgroup on Policy Actions	46
Annex 5.	External resource people	48
Annex 6.	External peer review group	49
Annex 7.	Guidance questions for the review of contextual factors	50
Annex 8.	GRADE evidence profile	51
Annex 9.	Summary of declarations of interests of contributors to the guideline development process	63
Annex 10.	Key characteristics of policies evaluated by studies included in the systematic review on the effectiveness of policies to restrict food marketing to which children are exposed	67

Acknowledgements

This guideline was prepared by the Department of Nutrition and Food Safety (NFS) of the World Health Organization (WHO) under the overall leadership of Francesco Branca, Director of the Department of Nutrition and Food Safety, and with coordination by Chizuru Nishida. Katrin Engelhardt was the responsible technical officer. The Department of Nutrition and Food Safety gratefully acknowledges the contributions that many individuals and organizations have made to the development of this guideline.

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Special acknowledgements are given to Elie Akl (American University of Beirut, Lebanon) who, as a methods expert, guided the work of the NUGAG Subgroup on Policy Actions throughout the guideline development process and to the systematic review team, led by Emma Boyland (University of Liverpool, United Kingdom of Great Britain and Northern Ireland).

External peer reviewer group: Huda Mustafa Al Hourani (The Hashemite University, Jordan), Gershim Asiki (African Population Health and Research Center, Kenya), Alejandro Calvillo (El Poder del Consumidor, Mexico), Suparna Ghosh-Jerath (Public Health Foundation of India, India), Maria João Gregório (Directorate-General of Health, Portugal), Fiona Sing (University of Auckland, New Zealand) and Boyd Swinburn (University of Auckland, New Zealand).

WHO Steering Committee: Melanie Bertram, Fiona Bull, David Clarke, Katrin Engelhardt, Monika Kosinska, Benn McGrady, Chizuru Nishida, Jeremias Paul, Marcus Stahlhofer, Nicole Valentine and Angeli Vigo.

Special thanks are given to: Ruby Brooks (WHO/NFS) for supporting the preparation of this guideline; Dorit Erichsen (WHO/NFS) for supporting the review of contextual factors; Jason Montez (WHO/NFS) and Kathryn Robertson (WHO/Public Health Law and Policies Team) for internal review of the draft guideline; and to Kaia Engesveen (WHO/NFS) for providing data on implementation of food marketing policies from the Global database on the Implementation of Nutrition Action.

WHO expresses special appreciation to the following organizations and institutions, for providing financial support for the guideline development work, including the undertaking of systematic reviews:

- Ministry of Health, Labour and Welfare of the Government of Japan
- Swiss Agency for Development and Cooperation
- European Union
- Swedish International Development Cooperation Agency
- Qingdao University, Qingdao, People's Republic of China.

Abbreviations

BMI	body mass index
CI	confidence interval
GRADE	Grading of Recommendations Assessment, Development and Evaluation
HFSS foods	foods high in saturated fatty acids, trans-fatty acids, free sugars and/or salt, usually highly processed, whose consumption is associated with negative health effects
HIC	high-income country
LMIC	low- and middle-income country
NCD	noncommunicable disease
NUGAG	Nutrition Guidance Expert Advisory Group
PICO	population, intervention, comparator and outcome
RCT	randomized controlled trial
SES	socioeconomic status
WHO	World Health Organization

Glossary

Children: Unless otherwise noted, as defined in the Convention on the Rights of the Child, all human beings below the age of 18 years unless, under the law applicable to children, majority is attained earlier (1).

Exposure: The reach and frequency of a communication, message or action that constitutes marketing. Reach is the percentage of people in a target market who are exposed to the communication, message or action over a specified period. Frequency is a measure of how many times the average person is exposed to the communication, message or action.

Food: Foods and non-alcoholic beverages.

Food choice: Used in this guideline to describe one of the outcomes of interest of the research questions that the guideline addresses. It refers to the selection of one food over another (or others) from a given selection of foods and hence is limited by the foods available.

Marketing: Any form of commercial communication, message or action that acts to advertise or otherwise promote a product or service, or its related brand, and is designed to increase, or has the effect of increasing, the recognition, appeal and/or consumption of products or services.

Nutrient profile model: A tool for classifying foods according to their nutritional composition for reasons relating to preventing disease and promoting health. Nutrient profile models in the context of food marketing help define foods to be restricted from marketing. According to the World Health Organization region-specific nutrient profile models (2–7), marketing is to be restricted for foods that belong to a food category with nutrient thresholds and exceed these thresholds, or belong to a food category for which all marketing is prohibited (for which no nutrient thresholds are established). Such foods are typically high in saturated fatty acids, *trans*-fatty acids, free sugars and/or salt, and are usually highly processed.

Policies: All measures to regulate marketing to which children are exposed, whether through legal instruments mandating compliance (such as legislation and regulations), government-led measures with which compliance is voluntary (such as codes of conduct and standards), or measures by which industry actors voluntarily undertake to restrict marketing (such as pledges and codes). Policies do not include action plans, strategies, programmes or initiatives.

Power: The extent to which a marketing communication, message or action achieves its communications objectives. The power of marketing is influenced by the content of the message, especially the creative strategies used. These strategies include graphics and visual design elements, such as cartoons and brand equity characters; humour, fun and fantasy; movie and sports celebrities; and competitions and entertainment events.

Executive summary

Background

Unhealthy diets are a leading global public health risk, contributing to all forms of malnutrition (i.e. undernutrition; micronutrient-related malnutrition; and overweight, obesity and diet-related noncommunicable diseases (NCDs)). Food environments, which include food marketing, are recognized as one of the key influences on diets. A 2009 review, for example, found that food marketing affected children's nutrition knowledge, food preferences and consumption patterns, and that the foods promoted by food marketing represented a "very undesirable dietary profile, with [a] heavy emphasis on energy dense, high fat, high salt and high sugar foods". More recent evidence has reinforced these findings, and the advent and growth of digital marketing have raised new concerns.

Food marketing is also increasingly recognized as a children's rights concern. Marketing of foods high in saturated fatty acids, *trans*-fatty acids, free sugars and/or salt negatively impacts several of the rights enshrined in the Convention on the Rights of the Child, including the rights to health, adequate and nutritious food, privacy, and freedom from exploitation. The Committee on the Rights of the Child has stated that the marketing of such foods should be regulated.

Objective, scope and methods

In 2010, the Sixty-third World Health Assembly unanimously endorsed the World Health Organization (WHO) *Set of recommendations on the marketing of foods and non-alcoholic beverages to children*, and urged Member States to take the necessary measures to implement the set of recommendations.

In response to Member State requests, WHO developed this guideline to strengthen and streamline support for Member States in developing and implementing new, or strengthening existing, policies to protect children from the harmful impact of food marketing.

This guideline builds on the 2010 WHO *Set of recommendations on the marketing of foods and non-alcoholic beverages to children*, and takes into consideration more recent evidence specific to children and to the context of food marketing. The guideline's objectives are to:

- provide evidence-based recommendations and implementation considerations for policies to protect all children from the harmful impact of food marketing;
- enable evidence-informed advocacy to advance policy action to restrict food marketing to which children are exposed;
- guide future research to further strengthen the evidence base for policy action; and
- contribute to the creation of healthy food environments that enable healthy dietary practices among children.

In this guideline, policies were defined as all measures to regulate marketing to which children are exposed, whether through legal instruments mandating compliance (such as legislation and regulations), government-led measures with which compliance is voluntary (such as codes of conduct and standards), or measures by which industry actors voluntarily undertake to restrict marketing (such as pledges and codes).

This guideline was developed using the procedures outlined in the *WHO handbook for guideline development*. These procedures include a review of systematically gathered evidence by an international, multidisciplinary group of experts (the Nutrition Guidance Expert Advisory Group (NUGAG) Subgroup on

Policy Actions); assessment of the certainty of that evidence via Grading of Recommendations Assessment, Development and Evaluation (GRADE); and consideration of additional decision criteria potentially relevant for the translation of the identified evidence into recommendations.

The evidence

Nature, extent and impact of food marketing

Evidence from a narrative review showed that food marketing predominantly promoted foods high in saturated fatty acids, *trans*-fatty acids, free sugars and/or salt (HFSS foods), and that food marketing was prevalent:

- in settings where children gather (e.g. schools and sports clubs);
- during children's typical television viewing times and on children's television channels;
- on digital spaces popular with young people; and
- in magazines targeting children and adolescents.

A wide variety of marketing strategies that were likely to appeal to children were reported by studies, and these were used more often when marketing HFSS foods than when marketing healthier foods. Across studies, the most frequently marketed food categories were fast food, sugar-sweetened beverages, chocolate and confectionery, salty and savoury snacks, sweet bakery items and snacks, breakfast cereals, and desserts.

Evidence from a systematic review showed that exposure to food marketing likely affects children's food choice or intended choice, product requests or intended requests, and dietary intake.

Effectiveness of policies to restrict food marketing to which children are exposed

Evidence from a systematic review showed that policies to restrict food marketing to which children are exposed may affect food purchasing by or for children. The evidence also showed that such policies may have effects on wider society, such as reduced investment in television advertising of HFSS foods, and reduced food and beverage advertising revenue on children's channels; these changes were considered favourable to public health.

The overall evidence on the effect of policies on children's exposure to food marketing and the power of food marketing was inconsistent. Analyses by policy design elements, however, showed that reductions in children's **exposure** to food marketing were more often found with:

- mandatory policies;
- policies designed to restrict food marketing to children, including those older than 12 years; and
- policies that used a government-led nutrient profile model to determine the foods for which marketing was to be restricted.

The analyses by policy design elements also showed that reductions in the **power** of food marketing were more often found with:

- mandatory policies; and
- policies designed to restrict food marketing to children, including those older than 12 years.

Studies comparing voluntary policy with no policy were significantly more likely to show effects on exposure to, and the power of, food marketing that were unfavourable to public health; this was not the case for studies comparing mandatory policy with no policy.

Analyses on the impacts of policies on food marketing exposure and power by marketing medium showed that most evidence was about television advertising. This evidence showed that mandatory policies were more likely to reduce exposure to and power of television advertising relative to voluntary policies. Evidence on the impact of policies on exposure to and power of digital food marketing was limited and only evaluated voluntary policies. This evidence showed that voluntary policies that addressed digital food marketing did not lead to a reduction in exposure to and power of such marketing.

Additional analyses were conducted on the impacts of policies on the use of different food marketing techniques. Most studies evaluated voluntary policies that restricted the use of promotional characters. These studies reported favourable effects more often than studies evaluating policies that restricted a broader range of child-appealing persuasive techniques or animation techniques.

Contextual factors

Evidence from a review of contextual factors showed that:

- policies to protect children from the harmful impacts of food marketing would be highly cost-effective or cost-saving;
- children of lower socioeconomic status (SES) in high-income countries (HICs) are more exposed to food marketing than are children of higher SES. As a result, policies to protect children from the harmful impacts of food marketing can be expected to reduce health inequities;
- policies to protect children from the harmful impact of food marketing are in accordance with human rights standards, whereas unregulated food marketing may jeopardize the fulfilment of the Convention on the Rights of the Child;
- in HICs, policies to protect children from the harmful impact of food marketing are largely acceptable to the public, but industry has generally opposed government-led restrictions;
- some countries have successfully implemented policies, demonstrating that policies are acceptable to government and policy-makers and feasible to implement.

Good-practice statement and recommendation

Good-practice statement

Children of all ages should be protected from marketing of foods that are high in saturated fatty acids, *trans*-fatty acids, free sugars and/or salt.

Statement rationale

The good-practice statement was formulated by the NUGAG Subgroup on Policy Actions based on several key considerations.

- Children continue to be exposed to powerful marketing of HFSS foods, consumption of which is associated with negative health effects (8, 9). Such marketing is prevalent (including on packaging, in settings where children gather (e.g. schools and sports clubs), during children's viewing times and on children's channels, in youth magazines, and on social media) and uses many techniques appealing to young audiences (9). Digital marketing is of growing concern because it facilitates engagement, which can amplify the marketing message and overall impact of marketing (9).
- Food marketing negatively affects children's food choice or intended choice (odds ratio 1.77; 95% confidence interval (CI): 1.26–2.50) and dietary intake (standardized mean difference 0.25; 95% CI: 0.15–0.35) (10). It also affects children's product requests to adults for marketed foods (10), and negatively influences the development of children's norms about food consumption (9).
- Enabling children of all ages to achieve their full developmental potential is a human right and a critical foundation for sustainable development. Children's rights, including their rights to health, adequate and nutritious food, privacy, and to be free from exploitation, are threatened by the marketing of HFSS foods (11–13).
- Countries that are State Parties to the Convention on the Rights of the Child have a legal obligation to ensure that children's rights are respected, protected and fulfilled. According to general comments on the Convention, countries that are State Parties to the Convention should use appropriate regulation to ensure that marketing does not have adverse impacts on children's rights, and should make the

best interests of the child a primary consideration when regulating marketing that is addressed and accessible to children (14, 15).

WHO recommendation

WHO suggests implementation of policies to restrict marketing of foods high in saturated fatty acids, *trans*-fatty acids, free sugars and/or salt to which children are exposed, and that such policies:

- be mandatory;
- protect children of all ages;
- use a government-led nutrient profile model to classify foods to be restricted from marketing;
- be sufficiently comprehensive to minimize the risk of migration of marketing to other media, to other spaces within the same medium or to other age groups; and
- restrict the power of food marketing to persuade.

(Conditional recommendation)

Recommendation remarks

These remarks provide context for the recommendation and are to facilitate interpretation and implementation.

- ‘Children’ refers to all human beings below the age of 18, as defined by the Convention on the Rights of the Child, unless, under the law applicable to children, majority is attained earlier.
- The impact of marketing is a function of both *exposure* and *power*.
 - Exposure is the reach (percentage of people in a target market who are exposed) and frequency (the number of times an average person is exposed) of a marketing communication, message or action. Policies should address children’s exposure to food marketing, irrespective of timing, venue or intended audience, and should therefore go beyond children’s media.
 - Power refers to the extent to which a marketing communication, message or action achieves its communications objectives. Power is influenced by the creative content and strategies used. The power of food marketing to persuade children relates to techniques appealing to children, including promotional characters, branding, emotional appeals, games, engagement techniques, interactive or downloadable content, and celebrity endorsements (9); these techniques impact dietary intake (10).
- Migration of marketing refers to the movement of marketing from restricted to unrestricted mediums or spaces (e.g. if a policy restricts marketing on television but not digital marketing, digital marketing may increase).
- A nutrient profile model is a tool for classifying foods according to their nutritional composition for reasons relating to preventing disease and promoting health. Nutrient profile models in the context of food marketing help define foods to be restricted from marketing and should align with national dietary guidelines.

Recommendation rationale

The recommendation was formulated by the NUGAG Subgroup on Policy Actions based on several key considerations (below and **Table 2, p. 24**).

- Based on evidence from a systematic review that assessed the effectiveness of policies to restrict food marketing to which children are exposed (8), the group judged policies to have moderate desirable effects and trivial undesirable effects and judged the overall balance between desirable and undesirable

effects to favour the intervention. Following application of the GRADE approach (see section 2.2), the certainty of the evidence from the systematic review was considered very low, therefore the group made a conditional recommendation. The group noted that the relevant policy evaluations were all observational studies, leading to lower certainty of evidence when applying the GRADE system, and that the inconsistency of effect, which led to downgrading of the certainty of evidence for some outcomes, was partly due to variation in policy design elements.

- The group judged policies to be cost-effective, feasible and generally acceptable to government, policy-makers and the public, but less so to industry. Further, implementation of policies supports the realization of human rights and will probably support improved health equity.
- Some policy design elements are likely to be effective in protecting children from marketing of HFSS foods, but others are more likely to lead to unfavourable effects. The recommendation therefore specifies elements that maximize the effectiveness of policies, as identified in the systematic review (8).
 - Of studies evaluating voluntary policies, significantly more studies showed undesirable effects than desirable effects on exposure to, and power of, food marketing. This was not the case for studies evaluating mandatory policies (8).
 - Of studies evaluating policies designed to restrict food marketing to children that included only children aged 12 years or younger, significantly more studies showed undesirable effects than desirable effects on exposure to, and power of, food marketing. This was not the case for studies evaluating policies that included children older than 12 (8).
 - Of studies evaluating policies that used a company-led nutrient profile model to define foods to be restricted from marketing more studies showed undesirable effects than desirable effects on exposure to food marketing. This was not the case for studies evaluating policies that used a government-led nutrient profile model.
 - Some studies indicated that policies that were too narrow in scope (i.e. not comprehensive) may have led to migration of marketing (e.g. from children’s television programmes to non-children’s television programmes, from younger to older age groups) (16, 17).
 - Food marketing uses strategies that appeal to young audiences (9), and marketing using such strategies affects food choice and dietary intake (10). Studies indicated that mandatory policies result in reductions in use of powerful marketing strategies, such as the use of promotional characters and other persuasive techniques that appeal to children (8).

Key considerations for implementation

In line with the good-practice statement, policies should be formulated in the best interests of children. Their design should also consider the policy design elements specified in the recommendation. The WHO/UNICEF publication *Taking action to protect children from the harmful impact of food marketing: a child rights-based approach* provides step-by-step guidance through the four main stages of the policy cycle (preparation; development; implementation; monitoring and evaluation).

Recommendations should be adapted to the local contexts of WHO regions and Member States. Considerations about the local context include:

- available resources, including for policy implementation, enforcement and continued monitoring for compliance;
- structures and mechanisms, including mechanisms to manage conflicts of interest and to safeguard public health policies and enforcement mechanisms;
- the policy context, including the country’s legal system and potential regulatory pathways and the overall political economy; and
- the stakeholders to consult or engage with at different stages of the policy cycle.

Other considerations include actions to reduce children’s exposure to cross-border marketing, and restrictions on the promotion of brands (as distinct from products and services).

Preparing for potential opposition to policies (such as that from industry) may increase policy strength and effectiveness. The WHO/UNICEF publication *Taking action to protect children from the harmful impact of food marketing: a child rights-based approach* gives guidance on anticipating opposition to policies, and summarizes common arguments against policies. It provides counterarguments based on a child rights-based approach and the available scientific evidence, and outlines steps to strengthen the government's position against legal challenges.

Policies to protect children from the harmful impact of food marketing are best implemented as part of a comprehensive policy approach to create enabling and supportive food environments. The recommendation in this guideline should be considered alongside other relevant WHO guidance and recommendations, including forthcoming WHO guidelines on school food and nutrition policies, nutrition labelling policies, and fiscal policies.

1. Introduction

1.1 Background

Unhealthy diets are a leading global public health risk, contributing to all forms of malnutrition (i.e. undernutrition; micronutrient deficiencies; and overweight, obesity, and diet-related noncommunicable diseases (NCDs)) (18, 19). Globally, 38.9 million children under the age of 5 were estimated to have overweight or obesity in 2020 – 41% of whom lived in low- and lower-middle-income countries (20). 45.4 million were estimated to be wasted, and 149.2 million to be stunted (20). Of children aged 5–19 in 2016, 337 million were estimated to have overweight or obesity (18). Virtually no progress has been made in reducing the spread of childhood overweight in two decades (20). Worldwide, dietary risks¹ were responsible for 11.61% of all disability-adjusted life years (DALYs) lost to NCDs and nearly 8 million deaths from NCDs in 2019 (21).

Every country in the world is affected by one or more forms of malnutrition. Malnutrition threatens the survival, growth and development of children and adolescents, as well as economies and nations (22). Combating malnutrition in all its forms is one of the greatest global health challenges (23, 24). The causes of malnutrition are complex, and action is required on many fronts (25–28). There is wide recognition that structural changes (i.e. changes to social, cultural, political and physical environments) are required to promote healthy diets (29). Behaviour change interventions on their own have had limited success in reducing disease risk factors (30). Following the work of the World Health Organization (WHO) on creating supportive environments for health (31–33), key actions to improve diets include those that focus on the food environment – that is, the surroundings that influence and shape consumers’ food behaviours, preferences and values, and prompt consumer decisions (34, 35).

Governments play a leading role in addressing malnutrition in all its forms and reducing the burden of diet-related NCDs, including through public policies that create food environments conducive to healthy diets (36–39) and through effective regulation of private sector activities that influence health – that is, the commercial determinants of health (33, 40). The private sector, however, continues to influence public health policy and regulation through lobbying and other actions (40).

Food marketing (**Box 1**) is one commercial activity that shapes the food environment and marketing of HFSS foods has long been recognized as having an especially harmful impact on the diets of children (41–43). Marketing is a recognized means to promote products that are harmful to health, such as HFSS foods (44). Arguments in defence of marketing fade when the marketed products harm health and when marketing poses a threat to children’s rights. In 2009, a review on the extent, nature and effects of food promotion to children found that food marketing affects children’s nutrition knowledge, food preferences and consumption patterns, and that the foods promoted by food marketing represented a “very undesirable dietary profile, with [a] heavy emphasis on energy dense, high fat, high salt and high sugar foods” (41). More recent evidence has echoed these findings, showing that exposure to food marketing affects children’s food preference, food choice and food intake in undesirable ways (45), and that food marketing continues to be predominantly for HFSS foods (9). Numerous studies have documented the wide variety of media used for food marketing, including television, packaging, magazines, outdoor media, digital and sponsorship media, and promotions in and around schools (9, 41–43). The advent and growth of digital marketing has raised new concerns, including the use of novel marketing techniques (e.g. food-themed apps, influencer marketing, user-generated content) (46). Another concern is the collection of copious personal data from internet users and the use of these data to target marketing to users (46).

¹ “Dietary risks” includes diets that are low in whole grains, fruit, nuts and seeds, vegetables, fibre, legumes, polyunsaturated fatty acids, calcium or milk, and/or are high in sodium, *trans*-fatty acids, processed meat, red meat or sugary drinks (Global Burden of Disease risk factors).

Box 1. What is marketing?

The definition of marketing used in this guideline builds on that used in the 2012 WHO publication *A framework for implementing the set of recommendations on the marketing of foods and non-alcoholic beverages to children* (47), with the explicit addition of marketing of brands. The 2012 framework refers to marketing of products and services, and states that efforts to restrict marketing need to consider how brands are marketed (47). Marketing, in this guideline, is therefore defined as:

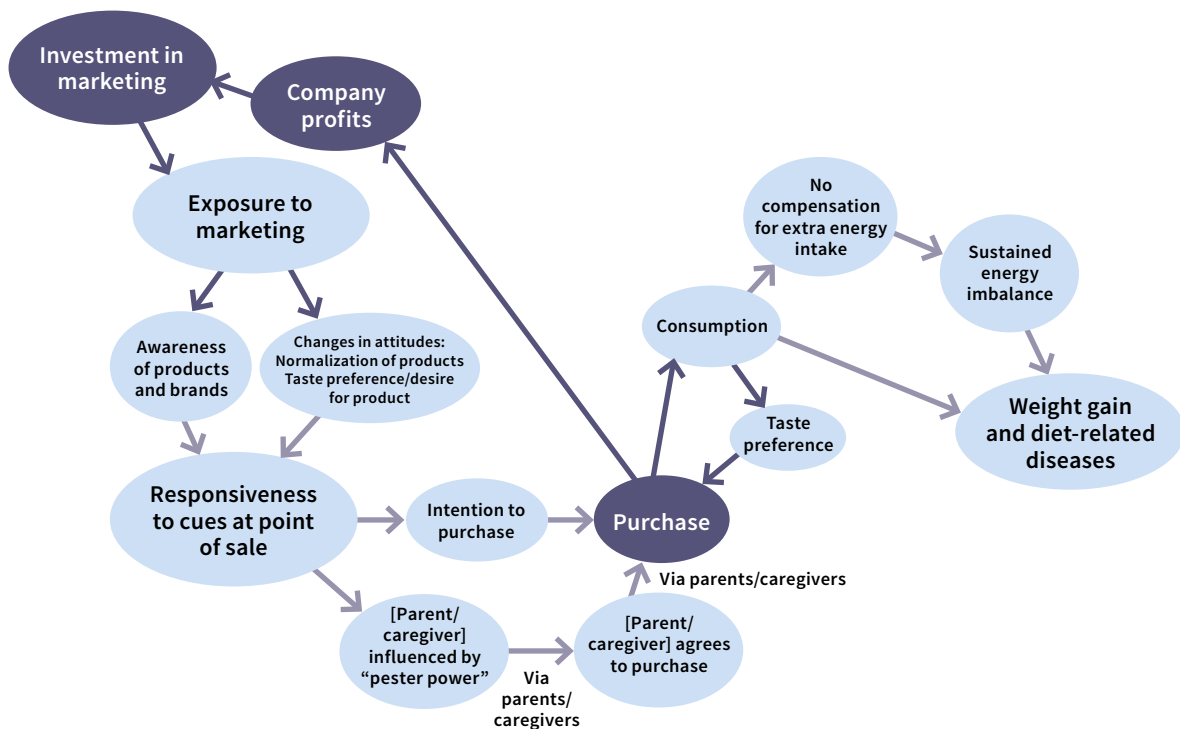
Any form of commercial communication, message or action that acts to advertise or otherwise promote a product or service, or its related brand, and is designed to increase, or has the effect of increasing, the recognition, appeal and/or consumption of products or services.

The definition of marketing in the 2012 framework is intended to be comprehensive in its coverage (47). For example, the framework explains that examples of marketing include not only advertising, but also product placement and branding, sponsorship, direct marketing, product design and packaging, and point-of-sale marketing (47). “Commercial” is also intended to be broadly interpreted to include all forms of direct and indirect promotion (47). The definition of marketing used in this guideline should be similarly interpreted to be comprehensive in its coverage.

Fig. 1 illustrates the cascade of effects by which exposure to food marketing is likely to ultimately influence children’s weight status and likelihood of developing diet-related NCDs (48), and highlights the commercial drivers of food marketing.

Food marketing is also increasingly recognized as a children’s rights concern, particularly in relation to the Convention on the Rights of the Child (12). The Convention on the Rights of the Child articulates the rights of children, including the rights to health, adequate and nutritious food, privacy and freedom from exploitation. Countries that are State Parties to the Convention have legal obligations to respect, protect

Fig. 1. Cascade of effects of food marketing



Source: Adapted from Kelly et al. (48).

and fulfil these rights, and are required to take immediate action to implement these obligations as a matter of priority (12). Countries that are State Parties to the Convention are therefore obliged to take action toward the fulfilment and realization of children's rights. This should include actions to protect children from marketing of HFSS foods as such marketing negatively affects children's rights, such as the rights to health, adequate and nutritious food, privacy and freedom from exploitation (12). The Committee on the Rights of the Child, in a 2013 general comment on the right of the child to the enjoyment of the highest attainable standard of health, stated that the marketing of foods that are high in fat, sugar or salt, and are energy-dense and micronutrient-poor should be regulated (49). The general comment articulated core obligations relating to children's right to health, which include reviewing the national and subnational legal and policy environment and, where necessary, amending laws and policies; providing an adequate response to the underlying determinants of children's health; and developing, implementing, monitoring and evaluating policies and budgeted plans of action that constitute a human rights-based approach to fulfilling children's right to health (49). In a 2021 general comment on children's rights in relation to the digital environment, the Committee on the Rights of the Child reinforced that marketing of "unhealthy products, including certain food and beverages" should be regulated to prevent children's exposure to such marketing and stated that regulations relating to the digital environment "should be compatible and keep pace with regulations in the offline environment" (15).

Recognizing the harmful impact of food marketing on children, numerous global and regional calls to action have been made. As part of implementation of the Global Strategy on Diet, Physical Activity and Health (2004) (50), the World Health Assembly in May 2010 endorsed the WHO *Set of recommendations on the marketing of foods and non-alcoholic beverages to children* (resolution WHA63.14) (51). The resolution called for policies to reduce the impact on children of marketing of HFSS foods. In response to WHA63.14, a framework was developed for implementing the WHO set of recommendations (47). Implementing policies to restrict food marketing to which children are exposed has also been proposed in various other WHO documents adopted by the World Health Assembly, including the Comprehensive Implementation Plan on Maternal, Infant and Young Child Nutrition (52) in 2012, and the Global Action Plan for the Prevention and Control of Noncommunicable Diseases 2013–2020¹ (53) in 2013. In 2016, the report of the WHO Commission on Ending Childhood Obesity similarly recommended implementation of the *Set of recommendations on the marketing of foods and non-alcoholic beverages to children* (54).

1.2 Scope and purpose

Despite growing evidence of the harmful impact of food marketing on children and increasing recognition of food marketing as a children's rights concern, as of May 2022, only 60² countries have adopted policies that restrict food marketing to which children are exposed. Of these, one third (20 countries) have mandatory policies. Additionally, in the second global nutrition policy review, undertaken in 2016–2017, responding countries that had measures in place to restrict food marketing to which children are exposed reported a mix of approaches used to define which foods are covered by such measures (55). Of 17 countries that provided detailed information, fewer than half used nutrient profile models to define the foods covered by the policies (55). Marketing restrictions differed not only in relation to the foods included but also the marketing media covered – of 28 countries that provided detailed information, 93% covered television, but only 29% covered social media (55). Overall, an important omission in existing measures was that, of the 18 countries that had defined the age of children covered by the policy, most had policies that covered children only up to the age of 12 years (55).

In response to Member State requests, and to strengthen and streamline support for Member States in developing and implementing new, or strengthening existing, public policies to protect children from the harmful impact of food marketing, WHO began developing this guideline, taking new evidence into consideration (**Box 2**).

¹ The Seventy-second World Health Assembly extended the period of the global action plan to 2030 to ensure its alignment with the 2030 Agenda for Sustainable Development.

² This number was collated by WHO from the WHO Global database on the Implementation of Nutrition Action (GINA) and the WHO Noncommunicable Disease Document Repository.

Box 2. How does this guideline relate to other published WHO guidance on policies to restrict food marketing to which children are exposed?

This guideline builds on the 2010 WHO *Set of recommendations on the marketing of foods and non-alcoholic beverages to children* (51), endorsed by the Sixty-third World Health Assembly in May 2010 (51).

Since then, the evidence on the harmful impact of food marketing has grown; however, country action remains limited, and children continue to be exposed to marketing for HFSS foods. New marketing media have also evolved, most notably digital marketing, which poses a growing concern.

The development of this guideline followed a transparent process, outlined in the *WHO handbook for guideline development* (56). This guideline considers a more recent evidence base than the set of recommendations was based on, including more recent evidence on the effectiveness of policies to restrict food marketing to which children are exposed and on the effectiveness of different policy approaches.

The 2012 WHO publication *A framework for implementing the set of recommendations on the marketing of foods and non-alcoholic beverages to children* (47) remains a useful resource for the development and implementation of policies to protect children from the harmful impact of food marketing, noting that evidence continues to accumulate, especially on the effectiveness of different policy approaches and on the evolution of new marketing media and techniques.

In view of the increasing recognition of food marketing as a children's rights concern, the 2012 framework should be used in conjunction with the 2023 WHO/United Nations Children's Fund (UNICEF) publication *Taking action to protect children from the harmful impact of food marketing: a child rights-based approach* (57). See Chapter 5 for further details.

Because no single intervention can ensure that all aspects of the food environment support healthy diets, a comprehensive package of policy actions is required. Therefore, guidelines are being developed for multiple policy actions in addition to policies to protect children from the harmful impact of food marketing, including nutrition labelling policies (58), fiscal policies (59) and school food and nutrition policies (60). Prioritization of policies will depend on the country context.

The scope of this guideline relates to policies to protect children from the harmful impact of food marketing, with a focus on marketing of HFSS foods. The systematic reviews undertaken to address the key questions for the guideline (see section 2.2) excluded studies on the impacts of marketing and marketing restrictions more broadly, and were restricted to direct evidence on food marketing and its impact on children. Although this limits the ability to extrapolate from evidence on marketing of other products, services or brands or on the impact of marketing on adults, the direct evidence was considered a workable subset of the evidence for developing this guideline. Finally, this guideline is not an implementation manual. It does not describe **how** countries can implement and monitor policies to protect children from the harmful impact of food marketing, but rather recommends **what** measures to take. While some implementation considerations are highlighted in Chapter 5, detailed implementation guidance can be found in the WHO/UNICEF publication *Taking action to protect children from the harmful impact of food marketing: a child rights-based approach* (57).

The WHO guidelines on policies to improve the food environment are in line with other WHO guidelines and recommendations, including guidelines on sodium intake (61) and sugars intake (62); forthcoming guidelines on total fat, saturated fatty acids and *trans*-fatty acids, polyunsaturated fatty acids, carbohydrates, use of non-sugar sweeteners and use of low-sodium salt substitutes; and the recommendations of the WHO Commission on Ending Childhood Obesity (54). The guidelines on policies to improve the food environment can be used in conjunction with available tools and frameworks, including the nutrient profile models and guidance developed by the WHO regional offices for restricting food marketing to which children are exposed (2–7).

1.3 Objectives

Complementing global and regional guidance on restricting food marketing to which children are exposed, and recognizing that there is considerable evidence on the impacts of marketing and marketing restrictions outside the food context, the objectives of this guideline are to:

- provide Member States with recommendations and some key implementation considerations on policies to protect all children from the harmful impact of food marketing;
- enable evidence-informed advocacy to advance policy action to restrict food marketing to which children are exposed;
- guide future research to further strengthen the evidence base for policy action to restrict food marketing to which children are exposed; and
- contribute to the creation of food environments that enable healthy dietary practices among children.

As noted above, this WHO guideline is one of several on policies to improve the food environment. The overarching objective of these guidelines is to contribute to the achievement of healthier populations, in line with the WHO Thirteenth General Programme of Work (2019–2023) (63). The WHO guidelines on policies to improve the food environment will also contribute to implementation of additional calls to action relating to nutrition and health ([Annex 1](#)).

1.4 Target audience

The guideline is intended for a wide audience involved in the development, design, implementation, monitoring and evaluation of policies to protect children from the harmful impact of food marketing, as well as those involved in compliance with, and advocacy for, such policies. The end users for this guideline are thus:

- national and local policy-makers and food regulators involved in developing, designing, implementing, monitoring or evaluating policies restricting food marketing to which children are exposed;
- implementers and managers of national and local health and nutrition programmes, including school administrators, teachers and educators;
- organizations (including nongovernmental organizations) and professional societies involved in advocating for, developing and evaluating policies restricting food marketing to which children are exposed;
- health professionals, including managers of health and nutrition programmes and public health policy-makers in all settings;
- scientists and other academic actors involved in relevant research (including policy evaluation); and
- representatives of the food industry, marketing/advertising agencies and related associations involved in implementing, or complying with, policies to restrict food marketing to which children are exposed.

2. How this guideline was developed

This guideline was developed in accordance with the WHO process for development of evidence-informed guidelines outlined in the *WHO handbook for guideline development* (56). This chapter describes the contributors to the guideline development process and the steps taken.

2.1 Contributors to guideline development

The guideline was developed by the WHO Department of Nutrition and Food Safety and other members of the WHO Secretariat ([Annex 2](#)), together with the contributors described below.

WHO Steering Committee

An internal steering committee ([Annex 3](#)) provided input to development of the guideline. The WHO Steering Committee included representatives from relevant departments in WHO with an interest in the provision of advice on food environment policies, determinants of health, health promotion, and maternal and child health.

Guideline development group

A guideline development group ([Annex 4](#)) – the WHO Nutrition Guidance Expert Advisory Group (NUGAG) Subgroup on Policy Actions – was convened with the main functions of determining the scope and key questions of the guideline (including the target population, intervention, comparator and outcomes of interest), reviewing the evidence and formulating evidence-based recommendations. The NUGAG Subgroup on Policy Actions included experts identified through an open call for experts in 2018, and people who had participated in previous WHO expert consultations or were members of WHO expert advisory panels. In forming the group, the WHO Secretariat considered the need for expertise from multiple disciplinary areas, representation from all WHO regions and a balanced gender mix. Efforts were made to include experts in complex interventions; development and/or implementation of policies to protect children from the harmful impact of food marketing; and systematic review, programme evaluation and Grading of Recommendations Assessment, Development and Evaluation (GRADE) methodologies.

External resource people

Various external resource people, including methods experts and members of the systematic review teams, attended the meetings of the NUGAG Subgroup on Policy Actions ([Annex 5](#)). The systematic review team was led by Dr Emma Boyland, University of Liverpool. It undertook two systematic reviews (8, 10) and a narrative review (9) to support development of the guideline.

External peer review group

Seven external peer reviewers were identified in consultation with WHO regional nutrition advisers from all WHO regions, representing academia, civil society and government ([Annex 6](#)). The external peer review took place between June and August 2022.

Public consultation

A public consultation on the draft guideline was held in July 2022. Stakeholders were invited to provide comments on the overall clarity of the guideline, considerations and implications for adaptation and implementation of the guideline, context- and setting-specific issues that may not have been captured,

any errors of fact and missing data. The consultation was open to everyone. Declaration of interest forms were collected from all those submitting comments, which were assessed by the WHO Secretariat following procedures for management of conflicts of interest (see section 2.3). The comments were reviewed and considered in finalizing the guideline. A summary of the comments, together with WHO responses, was posted on the WHO website.¹ Comments were received from 46 individuals and organizations.

2.2 Guideline development process

Scoping of the guideline

A scoping review of existing evidence was prepared by Dr Emma Boyland, University of Liverpool. The scoping review included a review of newly available evidence on:

- the impact of food marketing to children on food behaviours and health outcomes among children; and
- the impact of policies to restrict food marketing to which children are exposed on exposure to food marketing, the power of food marketing, and food behaviours and health outcomes among children.

Formulation of key questions and prioritization of outcomes

A policy to protect children from the harmful impact of food marketing is a priority policy option for creating food environments that contribute to healthy diets, and is implemented within complex systems (including the food system), that are country-specific, and influenced by political, legal, economic, cultural and ethical contexts. As proposed in the *WHO handbook for guideline development*, logic models can be used during guideline planning to show interventions of interest and elements of the system in which they are implemented to help formulate guideline questions (56). **Fig. 2** shows a logic model depicting pathways from policies to protect children from the harmful impact of food marketing to behavioural and health outcomes. It shows country context policy inputs and considerations, including potential interactions with other, complementary food environment policies, which can amplify the policy of interest's impact.

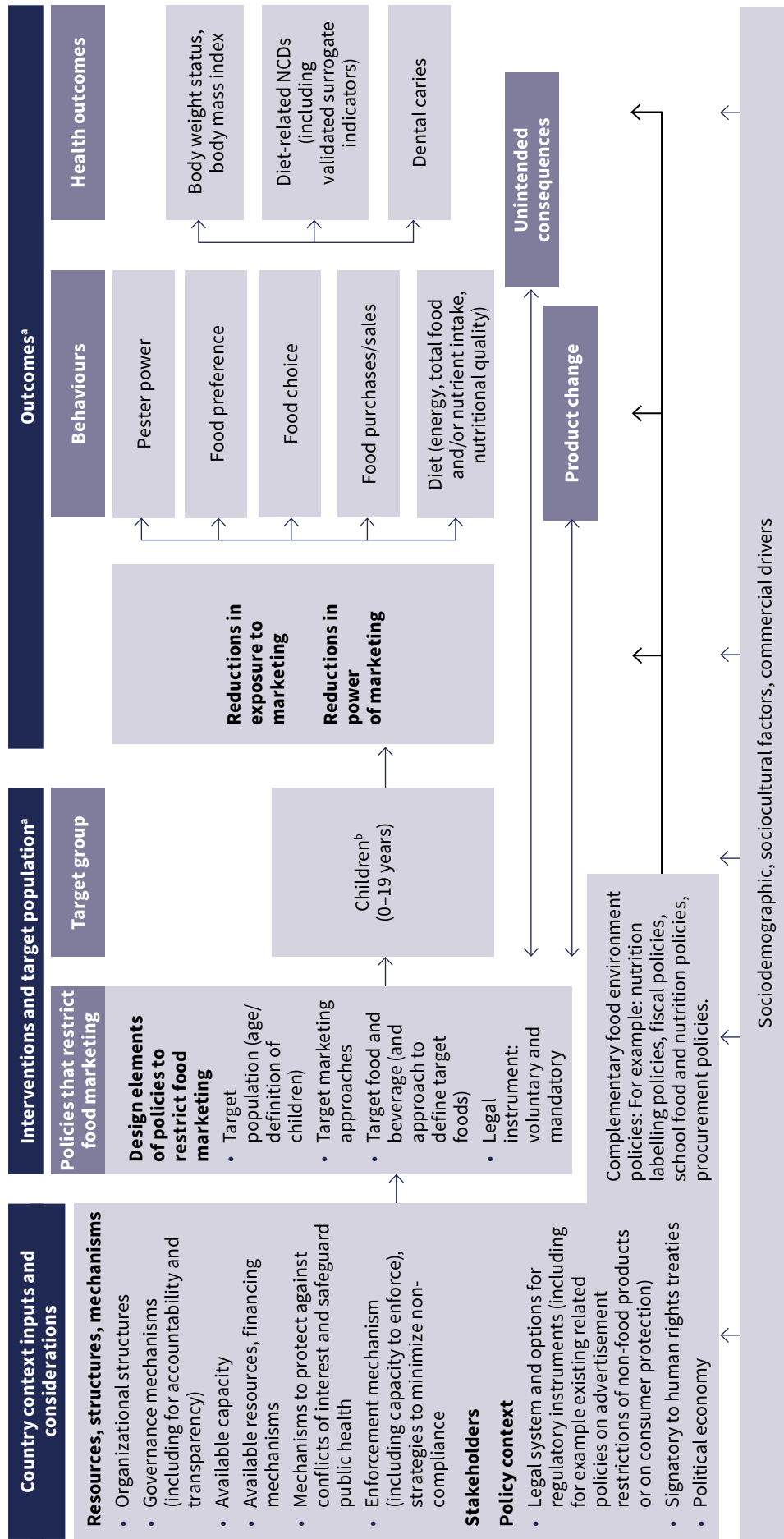
Considering the scoping review and the logic model, research questions were formulated using the population, intervention, comparator and outcome (PICO) format. Draft PICO questions were first discussed and reviewed by the WHO Secretariat, the WHO Steering Committee and the NUGAG Subgroup on Policy Actions. The final PICO questions were determined by the NUGAG Subgroup on Policy Actions. All potentially important outcomes were first identified and discussed by the group, followed by an anonymous online rating of outcomes on a scale from 1 to 9. Outcomes rated 7–9 were considered critical for decision-making, and those rated 4–6 were considered important. Those rated 1–3 were dropped from the PICO questions. The NUGAG Subgroup on Policy Actions noted several challenges to assessing longer-term health outcomes.

- The policies under consideration may have been only recently introduced, whereas changes to outcomes such as body weight/body mass index (BMI)/obesity and diet-related NCDs occur gradually.
- There are methodological challenges in disentangling the impact of food marketing and policies to restrict food marketing to which children are exposed from the complex array of factors that contribute to outcomes such as body weight/BMI/obesity and diet-related NCDs.
- There is a need to be realistic about the extent to which any one intervention can be expected to impact outcomes such as body weight/BMI/obesity and diet-related NCDs on its own. Instead, policies to restrict marketing are intended to contribute to such outcomes as part of a comprehensive package of policy actions.

Nonetheless, the group ranked several longer-term health outcomes as important, to ensure that the breadth and depth of current evidence were captured and considered in the guideline, and to highlight potential research and knowledge gaps and data challenges to strengthen the evidence base for future updates to this guideline. The selection of outcomes of interest when defining research questions should not be based on outcomes for which evidence is known to be available, but rather should provide the opportunity to explore the unknown and highlight data gaps.

¹ *Consolidated comments and responses: Public consultation on the draft WHO Guideline to protect children from the harmful impact of food marketing.*

Fig. 2. Logic model depicting pathways from inputs to outcomes for policies to protect children from the harmful impact of food marketing to behavioural and health outcomes



NCD: noncommunicable disease

^a Interventions and outcomes shown in the figure are those prioritized by the members of the WHO Nutrition Guidance Expert Advisory Group (NUGAG) Subgroup on Policy Actions in formulating the research question for the evidence review to inform the guideline on policies to restrict food marketing.

^b For the purposes of the logic model and systematic review, children were defined as those aged 0–19 years, as WHO defines adolescents as those aged 10–19.

The two PICO questions were as follows.

What is the effect on the outcomes of interest of exposure of children to food marketing, compared with no marketing?

- What is the effect on the outcomes of interest of implementing a policy that aims to restrict children's exposure to food marketing and its persuasive power, compared with not implementing a policy?

Table 1 provides details of the key questions in PICO format. As the WHO *Set of recommendations on the marketing of foods and non-alcoholic beverages to children* proposed that policies could be implemented through a variety of approaches, including statutory regulation, industry-led self-regulation and co-regulatory mechanisms (51), the definition of policies used in the second key question included both

Table 1. Population, intervention, comparator and outcomes for key questions

Measure	Key question 1	Key question 2
Population	Children (0–19 years) and, for the food purchasing/sales or intended purchasing outcome only, parents or other adults making purchases on behalf of children 0–19 years Disaggregation by age, sex, gender, BMI, SES, rurality, region (HICs and LMICs)	Children (0–19 years) Disaggregation by age, sex, gender, BMI, SES, rurality, region (HICs and LMICs)
Intervention	Exposure to marketing for foods (including non-alcoholic beverages)	All measures to regulate food marketing to which children are exposed, whether through legal instruments mandating compliance (e.g. legislation, regulations), government-led measures with which compliance is voluntary (e.g. codes of conduct, standards) or measures by which industry actors voluntarily undertake to restrict food marketing (e.g. pledges, codes) Disaggregation by target population, target marketing media, approach to defining target foods, voluntary or mandatory approach, and degree and quality of implementation and enforcement
Comparator	Exposure to no marketing, less marketing or less powerful marketing for foods (including non-alcoholic beverages)	No policy, or different policies that aim to restrict food marketing to which children are exposed
Critical outcomes for decision-making	Food preferences Food choice or intended choice Food purchasing/sales or intended purchasing Dietary intake	Exposure to marketing Power of marketing Food preferences Food choice or intended choice Food purchasing/sales or intended purchasing Dietary intake
Important outcomes	Product requests or intended requests Dental caries/erosion Body weight/BMI/obesity Diet-related NCDs (or validated surrogate indicators)	Product requests or intended requests Dental caries/erosion Body weight/BMI/obesity Diet-related NCDs (or validated surrogate indicators) Product changes Unintended consequences to wider society (e.g. revenue, jobs)

BMI: body mass index; HIC: high-income country; LMIC: low- and middle-income country; NCD: noncommunicable disease; SES: socioeconomic status.

Note: For the key questions, children were defined as those aged 0–19; WHO defines adolescents as those aged 10–19 (64).

mandatory and voluntary measures, to ensure that the effects of all policy approaches were considered. The second key question included disaggregation by target population, target marketing media, approach to defining target foods, voluntary or mandatory approach, and degree and quality of implementation and enforcement, to enable consideration of policy design elements that may affect policy effectiveness.

The nature of food marketing has evolved since a previous review, in 2009, on the impact of food marketing (41) – on which the 2010 WHO *Set of recommendations on the marketing of foods and non-alcoholic beverages to children* (51) was based. Further, the scoping review identified a growing evidence base on the impact of food marketing. Consequently, a new systematic review on the impact of food marketing on the outcomes of interest was commissioned. A second systematic review – to assess the evidence on the effectiveness of implemented policies to restrict food marketing to which children are exposed, including to determine their potential desirable and undesirable effects, and explore policy design elements – was also commissioned, as none of the reviews identified by the scoping review adequately answered the formulated research question.

The NUGAG Subgroup on Policy Actions requested an additional review to provide information on contextual factors that would be considered in the formulation of the recommendations, such as resource implications, equity and human rights, acceptability and feasibility. The contextual factors in the review included those outlined in the *WHO handbook for guideline development* (Chapters 10 and 18) (56). Extra questions were formulated to guide the review of contextual factors (Annex 7).

Evidence gathering and grading

Evidence gathered for this guideline included:

- a systematic review on the impact of food marketing on children (10);
- a narrative literature review on exposure to, and power of, food marketing, and their associations with food-related attitudes, beliefs and behaviours (9);
- a systematic review on the effectiveness of policies to restrict food marketing to which children are exposed (8); and
- a review of contextual factors (values, resource implications, equity and human rights, acceptability, and feasibility) (11).

The systematic review team conducted the two systematic reviews to address the two key questions in PICO format (Table 1). The systematic review searches were conducted in March and April 2019 and updated in March 2020. Studies that were retrieved in the systematic review searches and were considered relevant for the formulation of the guideline but did not meet eligibility criteria for either of the two systematic reviews were synthesized into a narrative review on exposure to, and power of, food marketing, and their associations with food-related attitudes, beliefs and behaviours (9). Reasons for excluding studies from the systematic reviews included ineligible study design or absence of a comparator group (9). Opinion pieces, studies that discussed marketing but did not report any primary data, and studies published before 2009 were excluded from the narrative review (9). The review of contextual factors was conducted by WHO and involved literature searches for systematic reviews, primary studies and grey literature that provided information on values, resource implications, equity and human rights, acceptability, and feasibility (11). Detailed descriptions of the methods for each review are available in the review publications.

In line with the guideline development process, the certainty of the body of evidence for each outcome gathered through each systematic review was assessed by the systematic review team using the GRADE approach. GRADE provides a transparent approach to grading the certainty of evidence for each outcome included in key questions. The certainty of evidence indicates the level of confidence that the effects of an intervention as observed in a body of evidence (i.e. a set of scientific studies) reflect the true effects that would occur in real-world settings.

Using the GRADE approach, there are four possible assessments for the overall certainty of the evidence for an outcome (65):

- very low (very low level of confidence in the effect estimate – the true effect is likely to be substantially different from the effect estimate);

- low (low level of confidence in the effect estimate – the true effect may be substantially different from the effect estimate);
- moderate (moderate level of confidence in the effect estimate – the true effect is likely to be close to the effect estimate, but there is a possibility that it is substantially different); and
- high (high level of confidence in the effect estimate – the true effect is likely to be close to the effect estimate).

The starting point for assessing the overall certainty of the evidence for an outcome depends on the design of the studies that contribute to the evidence base: evidence from observational studies starts at low certainty, because of residual confounding, whereas evidence from randomized controlled trials (RCTs) starts at high certainty. Most studies that assess the effectiveness of policies to restrict food marketing to which children are exposed are observational, which means that the certainty of evidence often starts at low. The overall certainty of evidence for each outcome in the systematic reviews was assessed by considering five factors for potentially downgrading the certainty (risk of bias, inconsistency, indirectness, imprecision and publication bias) as defined and used in the GRADE approach, and three factors for potentially upgrading the certainty (large effect size, all plausible confounding would reduce the demonstrated effect, and dose–response gradient).

For each GRADE factor for each systematic review, judgements were made by the systematic review team leader, and discussed and cross-checked with the systematic review team. The judgements and their rationale were recorded in a GRADE evidence profile table (see [Annex 8](#) for the GRADE evidence profile table for the systematic review on the effectiveness of policies to restrict food marketing to which children are exposed).

The certainty of evidence was not assessed for the narrative review or the contextual factors review.

Formulation of the recommendations

The NUGAG Subgroup on Policy Actions discussed and assessed the evidence, drafted recommendations, and reached consensus on the direction and strength of the recommendations using the GRADE approach. After reviewing the ratings for the certainty of evidence for each critical and important outcome, the NUGAG Subgroup on Policy Actions made a judgement on the overall certainty of evidence by reflecting on the validity, precision, consistency and applicability of the measures of effect, taking into consideration the pathway of effect of the entire body of evidence. The GRADE approach explicitly separates the process of assessing the level of certainty in the evidence from the process of making recommendations. The latter process takes into consideration several additional contextual factors (resource implications, equity and human rights, acceptability and feasibility) (65). The level of certainty of evidence does not imply a particular strength of recommendation; high certainty evidence does **not** necessarily mean that a strong recommendation will be made, and a strong recommendation can be made with low or very low certainty evidence, depending on additional considerations.

Evidence-to-decision tables were used to structure and document the discussion, and anonymous online voting was used to arrive at an initial judgement for each factor. Following the voting, initial judgements were discussed until the group reached consensus. Based on the evidence of effectiveness and additional contextual factors, the NUGAG Subgroup on Policy Actions developed the recommendations and associated remarks by consensus.

2.3 Management of conflicts of interest

According to the rules in the WHO *Basic documents* (66), whenever an expert or an individual provides independent advice to WHO, including participating in WHO meetings, a declaration of interest form must be submitted, and all declarations must be analysed. In the case of guideline development, this includes all members of the guideline development group (for this guideline, the NUGAG Subgroup on Policy Actions), individuals who prepare systematic reviews and evidence profiles, and any other experts (including external peer reviewers) who participate in the process of guideline development in an individual capacity. Declaration of interest forms were reviewed by the WHO Secretariat in consultation with the WHO Office of Compliance, Risk Management and Ethics when finalizing the composition of the NUGAG Subgroup on

Policy Actions. Before every meeting, the members of the NUGAG Subgroup on Policy Actions, the members of the systematic review team and other experts who would be participating in the meeting were asked to submit their updated declaration of interest forms. In addition to distributing the declaration of interest form, the WHO Secretariat described the declaration of interest process and provided an opportunity during meetings for guideline development group members to declare any interests not provided in written form. All declared interests were reviewed by the WHO Secretariat in consultation with the Office of Compliance, Risk Management and Ethics, as necessary. A summary of declared interests and the assessment of these interests is provided in [Annex 9](#).

Similarly, declaration of interest forms from external peer reviewers were assessed by the WHO Secretariat, following the procedures for management of interests outlined in the *Guidelines for declaration of interests for WHO experts* (67).

3. Summary of evidence

Evidence was gathered via a systematic review of studies on the impact of food marketing on children (10), a narrative review on food marketing exposure and power and their associations with food-related attitudes, beliefs and behaviours (9), a systematic review on the effectiveness of policies to restrict food marketing to which children are exposed (8), and a review of contextual factors (11). The evidence gathered was specific to food marketing and does not include broader evidence on the impact of marketing of other products, services or brands, or on the effectiveness of policies to restrict marketing of these. Policy-makers may draw upon such broader evidence to further support marketing restrictions.

3.1 Evidence on the nature, extent and impact of food marketing

The evidence summarized in this section is from two reviews: the narrative review on exposure to, and power of, food marketing, and their associations with food-related attitudes, beliefs and behaviours (9); and the systematic review on the impact of food marketing on children (10).

Narrative review

A total of 179 studies, published from 2009 onwards, were included in the narrative review, which found that marketing of HFSS foods remains pervasive and persuasive across the globe (9).

As mentioned in section 2.2, articles that were retrieved in the searches for the two systematic reviews but were not eligible for inclusion in those reviews (e.g. because of unsuitable study design or comparator) were considered for inclusion in the narrative review. The findings should be interpreted as a thorough overview rather than an exhaustive account of the available evidence.

The studies were grouped as those related to:

- children’s exposure to food marketing;
- the power of food marketing; and
- associations between food marketing and eating-related attitudes, beliefs and behaviours among children.

A total of 118 studies (43 solely on exposure and 75 on both exposure and power) provided evidence on children’s exposure to food marketing. The majority of studies were conducted in high-income countries (HICs) only (89 studies, compared with 26 conducted in low- and middle-income countries (LMICs) only, and three conducted in both HICs and LMICs). Studies assessed exposure to food marketing via television, digital media, product packaging, magazines and sports sponsorship; and in store, in schools, outdoors, on public transport and in restaurants. Findings of studies showed that, across marketing media, food marketing was prevalent and predominantly promoted HFSS foods.¹ The proportion of food marketing that was identified as being for HFSS foods generally ranged from 31.0% to 93.0%. The most frequently marketed foods (as defined by the study authors) included “fast food”, sugar-sweetened beverages, chocolate and confectionery, salty/savoury snacks, sweet bakery items and snacks, breakfast cereals, dairy products, and desserts. The studies showed that food marketing continues to be directed at children – one study reported

¹ The studies included in the narrative review used varying terms to describe, and varying criteria to define, HFSS foods. Frequently used definitions and descriptors for such foods in reviewed studies included “unhealthy”, “foods high in fats, sugars and/or salt (HFSS)”, “not permitted”, “less healthy”, “junk food”, “energy-dense nutrient poor (EDNP)”, “non-core”, “ultraprocessed”, “not meeting nutritional quality standards”, “discretionary”, “high in” or “rich in” undesirable nutrients, and “low in nutritional quality”.

that as many as 95.2% of television advertisements for food were child oriented – and that child-directed marketing is generally for HFSS foods. Studies from the United Kingdom, Australia, the United States of America and New Zealand indicated that exposure to food marketing varied by socioeconomic status (SES), with greater exposure among those of lower SES.

A total of 100 studies (25 solely on power and 75 on both exposure and power) provided evidence on the power of food marketing. The majority of studies were conducted in HICs only (74 studies, compared with 23 conducted in LMICs only, and three conducted in both HICs and LMICs). Studies considered food marketing via television, digital media, product packaging, magazines and sports sponsorship; and in store, in schools, outdoors and in restaurants. The studies showed that, across marketing media, a wide variety of strategies that are likely to appeal to children were used in food marketing. These included celebrity/sports endorsements; promotional characters; product claims; promotions, gifts/incentives and tie-ins; competitions; games; colour, visual imagery and novel designs; animation, dynamic elements and special effects; prominent food cues; branding; product association; salient themes or contexts; persuasive appeals; emotional appeals; health/nutrition claims and disclaimers; depiction of physical activity; engagement techniques; interactive or downloadable content; children's language and voices, and child-related messages and fonts; and large portion sizes. Some of these strategies were more frequent in food marketing directed at children than in general marketing, and in marketing of HFSS foods than in marketing of healthier foods.

A total of 36 studies (16 studies on associations between food marketing and outcomes of interest, and 20 qualitative studies on the impact of food marketing) provided evidence on the effect of food marketing. Of these, 22 studies were from HICs and 14 from LMICs. Studies considered food marketing via television, video games, billboards, the internet, social media, in store and in print.

The studies on associations between food marketing and outcomes of interest covered a range of outcomes. For example, one study showed that exposure to marketing for HFSS foods was positively associated with descriptive norms about the consumption of such foods among adolescents. In another study, the frequency of consumption of such foods was affected by the entertaining dimension of advertising and the level of emotional arousal that children experienced after exposure to food marketing. Studies also reported a positive association between frequency or level of exposure to food marketing and habitual consumption of marketed foods. Two studies indicated that engagement with food marketing (e.g. liking, sharing or commenting on social media posts; actively watching brand videos on YouTube) was associated with a greater impact on consumption than exposure to food marketing on its own. One study reported a positive correlation between the amount of time spent watching television and the prevalence of dental caries. Another reported a significant association between commercial television viewing at time 1 and BMI at time 2 (5 years later), which persisted after adjusting for exercise and eating while viewing television; no association was found for non-commercial television viewing.

The qualitative studies also reported on a wide range of impacts of food marketing. For example, one study reported that children could recognize advertised food in the supermarket, while another reported that adolescents could identify energy drink products by brand name. Several studies identified strategies that were likely to appeal to children in food marketing, including promotional characters, toys, playful visuals, colourful packaging, brand imagery and fun themes. Adolescents in one study reported that product packaging, the use of humour and the product's projected image were important. In another study, young adults reported that advertisements that they considered credible, entertaining, informative or relevant to them, or that contained offers, were of more interest to them. In a different study, young adults reported more positive feelings towards brands after exposure to brand websites and social media pages, and particularly content related to corporate social responsibility initiatives, community involvement and sponsorship. In multiple studies, parents reported concern about children's exposure to food marketing and support for regulation of such marketing. Children in one study believed that "junk food" should not be advertised to them. In terms of the impact of food marketing, studies generally reported a belief among participants that food marketing influenced eating and related behaviours among young people; these included studies of children, adolescents and parents. In one of these studies, parents reported that their children wanted to purchase food shown in advertisements; in another, children reported that they had chosen a cereal because of a toy and regardless of its taste. Children also reported being influenced by

advertisements that their Facebook friends had liked or commented on. In contrast, in one study, parents believed that advertising for food had no effect on preferences or requests, and children did not believe they had learned about food from food advertising.

Systematic review

A total of 96 studies, reported in 100 records, were included in the systematic review on the impact of food marketing on children (10). **Table 1** outlines the population, intervention, comparator and outcomes that guided the review. Because the review was an update of a previous review conducted in 2009 (41), studies were limited to those with a publication date from January 2009 onwards. The search was conducted in April 2019 and updated in March 2020. Of the 96 included studies, 64 were RCTs and 32 were non-randomized studies (21 experimental and 11 observational). The majority of studies were conducted in HICs; only six took place in LMICs.

Pooled analyses were completed for three of the four critical outcomes – food preferences, food choice or intended choice, and dietary intake – and none of the four important outcomes. For the pooled analyses, moderator analyses assessed the possible impact on the effect sizes of study design type (RCT or non-randomized study), marketing manipulation type (exposure or power), marketing medium (television, digital or packaging) and risk of bias. The possible impact of different marketing techniques (e.g. promotional characters, toys, celebrities) could not be assessed because of the small number of effect sizes for each technique within each outcome. For food choice or intended choice and dietary intake, the possible impact of mean age and BMI z-score of children on effect sizes was also assessed – this was not possible for food preferences because of the small number of effect sizes. Analyses by SES, sex, gender, rurality or region (i.e. HICs and LMICs) were not possible.

A total of 20 studies (12 RCTs and eight experimental non-randomized studies) provided evidence on the impact of exposure to food marketing on the critical outcome of food preferences. Pooled analysis of 14 effect sizes from 12 studies found a standardized mean difference in food preferences of 0.30 (95% confidence interval (CI): 0.12–0.49; $Z = 3.21$; $P = 0.001$; $I^2 = 90.0\%$), indicating a significant effect of exposure to food marketing on food preference compared with exposure to no, less or less powerful food marketing. There was no statistical evidence that study design type, marketing manipulation type or marketing medium significantly moderated the effect size. Eight studies lacked the required data to be included in the pooled analysis – four of these found a significant association, two reported an association but did not report statistical testing, one showed apparently similar preferences between the exposure and control, and one found no significant association. According to the GRADE assessments for both the pooled analysis and all data, there is very low certainty evidence from RCTs and very low certainty observational evidence about the effect of food marketing on food preferences (10).

A total of 37 studies (27 RCTs and 10 experimental non-randomized studies) provided evidence on the impact of exposure to food marketing on the critical outcome of food choice¹ or intended choice. Pooled analysis of 27 effect sizes from 27 studies found an odds ratio of 1.77 (95% CI: 1.26–2.50; $Z = 3.27$; $P < 0.001$; $I^2 = 77.5\%$), indicating that exposure to food marketing was associated with 1.77 times the odds of choice of the test item compared with exposure to no, less or less powerful food marketing. There was no statistical evidence that study design type, marketing manipulation type, marketing medium, risk of bias or mean age of children significantly moderated the effect size. Ten studies lacked the required data to be included in the pooled analysis – six of these found a significant association, two found no significant association, one reported greater choice of the test item in the control condition but did not report test statistics (the authors suggested that this was due to issues with the demographic targeting of characters to children, with liking of characters very dependent on the age and sex of children), and one reported an association but did not report statistical testing. According to the GRADE assessments for both the pooled analysis and all data, there is moderate certainty evidence from RCTs that food marketing likely increases choice of marketed foods and very low certainty observational evidence about the effect of food marketing on food choice or intended choice (10).

¹ The term “food choice” is used to describe the outcome of interest. Food choice refers to selection of one food over another (or others) from a given selection of foods and hence is limited by the foods available.

A total of 46 studies (31 RCTs and 15 non-randomized studies – seven experimental and eight observational) provided evidence on the impact of exposure to food marketing on the critical outcome of dietary intake. Pooled analysis of 43 effect sizes from 41 studies found a standardized mean difference in dietary intake of 0.25 (95% CI: 0.15–0.35; $Z = 4.88$; $P < 0.001$; $I^2 = 76.6\%$), indicating a significant effect of exposure to food marketing on dietary intake compared with no, less or less powerful food marketing. There was no statistical evidence that study design type, marketing manipulation type, marketing medium, risk of bias, mean age of children or mean BMI z-score significantly moderated the effect size. Five studies lacked the required data to be included in the pooled analysis – three of these studies found a significant association, and two found no significant association. According to the GRADE assessments for both the pooled analysis and all data, there is moderate certainty evidence from RCTs that food marketing likely increases dietary intake slightly and very low certainty observational evidence about the effect of food marketing on dietary intake (10).

As pooled analysis could not be completed for the important outcome of product requests or intended requests, because of a small number of studies and lack of reporting of relevant statistics, P value combination was used. Six studies (five RCTs and one observational non-randomized study) provided evidence. The combination of P values was significant in all model iterations ($P < 0.001$), indicating an effect of food marketing on product requests or intended requests. According to the GRADE assessment, there is moderate certainty evidence from RCTs that food marketing likely increases product requests or intended requests and very low certainty observational evidence about the effect of food marketing on product requests or intended requests (10).

As a result of the limited availability of P values, vote counting by direction of effect was used for the remaining critical outcome of food purchasing/sales or intended purchasing and the important outcomes of dental caries/erosion and body weight/BMI/obesity. The five effect directions were clear effect of public health harm, unclear effect of potential public health harm, no difference in effect, unclear effect of potential public health benefit, and clear effect of public health benefit. No relevant studies were identified for the important outcome of diet-related NCDs (or validated surrogate indicators).

Five studies (one RCT and four non-randomized studies – one experimental and three observational) provided evidence on the impact of exposure to food marketing on the critical outcome of food purchasing/sales or intended purchasing. Of the five studies, one reported a clear effect of public health harm, one an unclear effect of potential public health harm, two no significant association, and one a clear effect of public health benefit (a significantly higher proportion of orders for fruit desserts on days when fruit desserts were promoted). According to the GRADE assessment, there is very low certainty evidence from RCTs and very low certainty observational evidence about the effect of food marketing on food purchasing/sales or intended purchasing (10).

Two studies (both observational non-randomized studies) provided evidence on the impact of exposure to food marketing on the important outcome of dental caries/erosion. One study reported a clear effect of public health harm, whereas the other study reported no significant association. According to the GRADE assessment, there is very low certainty observational evidence about the effect of food marketing on dental caries/erosion (10).

A single observational non-randomized study provided evidence on the impact of exposure to food marketing on the important outcome of body weight/BMI/obesity. The study reported no significant association. According to the GRADE assessment, there is very low certainty observational evidence about the effect of food marketing on body weight/BMI/obesity (10).

3.2 Evidence on effectiveness of policies to restrict food marketing to which children are exposed

A total of 44 observational studies, reported in 47 records, were included in the systematic review on the effectiveness of policies to restrict food marketing to which children are exposed (8). **Table 1** outlines the population, intervention, comparator and outcomes that guided the review, and **Annex 8** provides the GRADE evidence profile. The search was conducted in March 2019 and updated in March 2020. The 44 included studies assessed the impact of 14 policies (including two subnational policies¹ and one regional

¹ Quebec (Canada) and San Francisco (United States)

policy¹) implemented in 10 countries² and one region (the European Union) (see [Annex 10](#) for details of included policies). Seven policies were voluntary measures. Only one study used a natural experiment design;³ all others had cross-sectional designs. All but one of the studies were conducted in HICs; the one study conducted in an LMIC was from Mexico.

Because of the nature of the available evidence, comparators were not consistent for all studies. Studies were therefore considered according to five comparisons:

- comparison 1 – any policy compared with no policy (includes all studies from comparisons 2 and 3);
- comparison 2 – mandatory policy compared with no policy (i.e. post-implementation compared with pre-implementation);
- comparison 3 – voluntary policy compared with no policy (i.e. post-implementation compared with pre-implementation, or signatory companies compared with non-signatory companies);
- comparison 4 – mandatory policy compared with voluntary policy;⁴ and
- comparison 5 – fully implemented mandatory policy compared with partially implemented mandatory policy.

Pooled analysis could not be completed for any of the outcomes of interest, because of the heterogeneity in effect measures⁵ and the lack of data required for computation of effect sizes. Because of the lack of effect estimates and limited number of *P* values, vote counting using five effect directions was used to synthesize results for the critical outcomes of exposure to food marketing, power of food marketing, food purchasing/sales or intended purchasing and dietary intake, and the important outcomes of product changes and unintended consequences to wider society by outcome of interest for the five comparisons described above. The five effect directions were clear effect favouring the intervention, unclear effect potentially favouring the intervention, no difference in effect, unclear effect potentially favouring the control, and clear effect favouring the control. **Fig. 3** shows the results of the vote counting for each outcome and each comparison. No evidence was found for the critical outcomes of food preferences and food choice or intended choice, and the important outcomes of product requests or intended requests, dental caries/erosion, body weight/BMI/obesity and diet-related NCDs (or validated surrogate indicators).

Where possible, subgroup analyses compared findings based on the target age group, marketing medium, approach to determining foods restricted from marketing, and marketing technique.⁶ As pooled analyses could not be completed, formal sensitivity analyses were not possible – instead, results were synthesized narratively. Because of data limitations, it was not possible to complete subgroup analyses for children by body weight/BMI/obesity, SES, age group, sex, gender, rurality or region (i.e. HICs and LMICs).

Overall, 37 studies provided evidence on the effect of food marketing policy on the critical outcome of **exposure** to food marketing. Of these, four studies reported effects clearly favouring the intervention (i.e. considered desirable for public health), 11 reported unclear effects potentially favouring the intervention, seven reported no effects of the intervention, 11 reported unclear effects potentially favouring the control (i.e. considered undesirable for public health), and four reported effects clearly favouring the control. As shown in **Fig. 3**, however, the distribution of studies varied between the comparisons – studies comparing mandatory policy with no policy were more likely to report effects clearly or potentially favouring the intervention (five out of seven studies – 71% of studies) than studies comparing voluntary policy with no policy (eight out of 26 studies – 31% of studies). Additionally, studies comparing voluntary policy with no

¹ European region

² Australia, Canada, Chile, Germany, Mexico, Republic of Korea, Singapore, Spain, United Kingdom, United States

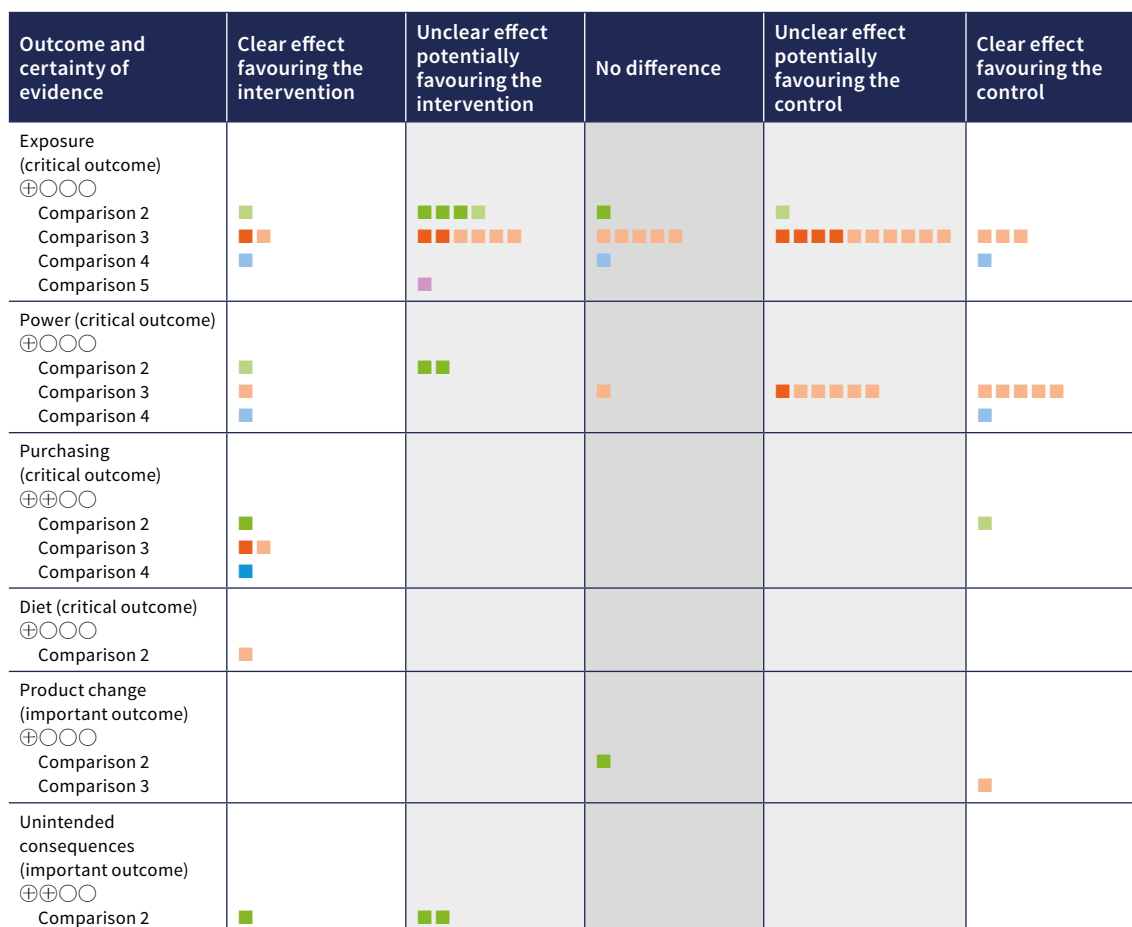
³ Evaluation of the Quebec Consumer Protection Act, Canada (68)

⁴ When mandatory policy was compared with voluntary policy, mandatory policy was considered the stronger policy because of its mandatory nature and therefore uniform application.

⁵ As an example, the effect measures for the outcome of exposure to food marketing included the number of food advertisements, the rate of food advertisements, the proportion of all advertisements that were for food, the proportion of all advertisements that were for HFSS foods, the proportion of food advertisements that were for HFSS foods, nutritional quality of advertised foods, gross rating points (a measure of audience size) and person-minute-views (the viewing audience multiplied by the length of advertisements).

⁶ Details of the additional analyses are available in the supplementary material (Appendix D–H) to the systematic review (8), except for the subgroup analyses of studies evaluating policies using government-led nutrient profile models and company-led nutrient profile models, which is shown in the GRADE evidence profile ([Annex 8](#)). This analysis was conducted following publication of the systematic review, but deemed relevant because of the clarification it provides.

Fig. 3. Harvest plot of the effects of policies to restrict food marketing to which children are exposed



Each block represents one study. Dark shading = high quality study. Certainty of the evidence = ⊕○○○ very low; ⊕⊕○○ low; ⊕⊕⊕○ moderate; ⊕⊕⊕⊕ high

Notes: Comparison 2 compared mandatory policy with no policy (i.e. post-implementation compared with pre-implementation). Comparison 3 compared voluntary policy with no policy (i.e. post-implementation compared with pre-implementation, or signatory companies compared with non-signatory companies). Comparison 4 compared mandatory policy with voluntary policy. Comparison 5 compared fully implemented mandatory policy with partially implemented mandatory policy.

policy were significantly more likely to show effects on exposure to, and the power of, food marketing that were unfavourable to public health than effects that were favourable; this was not the case for studies comparing mandatory policy with no policy. Of studies comparing any policy with no policy, subgroup analyses of other policy design elements showed that some studies were more likely than others to report effects clearly or potentially favouring the intervention.

Studies of policies designed to restrict food marketing to children including those older than 12 showed benefits on exposure more often (six out of eight studies) than studies evaluating policies designed to restrict food marketing to children that included only children aged 12 or younger (seven out of 25 studies). Additionally, studies evaluating policies designed to restrict food marketing to children that included only children aged 12 or younger were significantly more likely to report unfavourable than favourable effects on exposure; this was not the case for studies evaluating policies designed to restrict food marketing to children including those older than 12 years.

Studies of policies that addressed exposure to television food marketing and to packaging more often found a beneficial impact on exposure (12 out of 29 studies and one of one studies, respectively) than did studies of policies that addressed exposure to digital marketing (zero of three studies; all three assessed policies were voluntary).

Studies of policies that used a government-led nutrient profile model more often found a beneficial impact on exposure (five out of six studies) than did studies of policies that used a company-led nutrient profile model (eight out of 25 studies). Additionally, studies evaluating policies that used a company-led nutrient profile model were more likely to report unfavourable than favourable effects on exposure; this was not the case for studies evaluating policies that used a government-led nutrient profile model.

Some studies reporting on exposure to marketing also provided information about the potential migration of marketing following policy implementation. For example, a study included in the systematic review demonstrated that after the prohibition in the United Kingdom of Great Britain and Northern Ireland of television advertising of HFSS foods on all children's channels and on non-children's channels during or around programmes "of particular appeal" to children, children's relative exposure to television advertising of HFSS foods did not change because of an apparent migration of such advertising to other times and channels that children also viewed (17). Another study included in the systematic review demonstrated that, following the implementation of a policy focused on children younger than 12 in the United States of America, there was a decrease in the average food and beverage television advertisements 2–11 year-olds viewed per year, but an increase for 12–17 year-olds, suggesting migration of marketing to non-restricted spaces (16).

A total of 18 studies provided evidence on the effect of food marketing policy on the critical outcome of **power** of food marketing. Of these, three studies reported effects clearly favouring the intervention, two reported unclear effects potentially favouring the intervention, one reported no effects of the intervention, six reported unclear effects potentially favouring the control, and six reported effects clearly favouring the control. As with exposure to food marketing, the distribution of studies varied between the comparisons (**Fig. 3**) – studies comparing mandatory policy with no policy were far more likely to report effects clearly or potentially favouring the intervention (three out of three studies – 100% of studies) than studies comparing voluntary policy with no policy (one out of 13 studies – 8% of studies). Additionally, studies comparing voluntary policy with no policy were significantly more likely to show effects on the power of food marketing that were unfavourable to public health than effects that were favourable; this was not the case for studies comparing mandatory policy with no policy. Of studies comparing any policy with no policy, subgroup analyses of other policy design elements showed that some studies were more likely than others to report effects clearly or potentially favouring the intervention.

Studies evaluating policies designed to restrict food marketing to children including those older than 12 years more often reported favourable effects on power (in three out of four studies) than studies evaluating policies designed to restrict food marketing only to children that included only children aged 12 or younger (one out of 12 studies). Additionally, studies evaluating policies that were designed to restrict food marketing to children that included only children aged 12 or younger were significantly more likely to report unfavourable than favourable effects; this was not the case for studies evaluating policies designed to restrict food marketing to children including those older than 12 years.

Studies evaluating policies (most of which were voluntary) that restricted the use of promotional characters more often reported favourable effects on power (in three out of 10 studies) than studies evaluating policies that restricted a broader range of child-appealing persuasive techniques (one out of five studies) or animation techniques (zero out of one study). Most of the studies included in this analysis evaluated voluntary policies.

Studies evaluating policies that addressed power of television food marketing or packaging were more often reported to have favourable effects on power (in three out of 10 studies, and in one out of three studies, respectively) than were policies that addressed power of digital marketing (zero out of three studies; all three assessed policies were voluntary).

Five studies provided evidence on the effect of food marketing policy on the critical outcome of food **purchasing**. Of these, four studies reported effects clearly favouring the intervention, and one study reported effects clearly favouring the control.

One study provided evidence on the effect of food marketing policy on the critical outcome of **dietary intake**; the study reported effects clearly favouring the intervention.

Two studies provided evidence on the effect of food marketing policy on the important outcome of **product change**. Of these, one study reported no effects of the intervention, and one study reported effects clearly favouring the control.

Three studies provided evidence on the effect of food marketing policy on the important outcome of **unintended consequences to wider society**. Of these, one study reported effects clearly favouring the intervention (a statistically significant reduction in expenditure on television advertising of HFSS foods), and two reported unclear effects potentially favouring the intervention (a reduction in spending on television advertising of HFSS foods, and a reduction in net food and drink advertising revenue on children's channels). These changes were considered favourable to public health.

3.3 Evidence on contextual factors

A total of 244 publications were included in the review of contextual factors relevant to policies to protect children from the harmful impact of food marketing (11). The overall aim of the review was to search for, identify, summarize and present information on the impact of contextual factors on implementation of policies to protect children from the harmful impact of food marketing.

Fifty-eight publications provided evidence related to values. Study populations varied in their values about body weight status. In HICs, overweight and obesity were generally perceived as a serious health problem. Women were more likely than men to perceive overweight and obesity (especially childhood obesity) as a serious health problem, as were people of lower SES compared with their higher SES counterparts. In contrast, in many studies from LMICs, overweight and obesity were perceived as indicating good health or interpreted as "normal weight". However, in some countries that have perceived overweight and obesity as indicating good health, values are changing, and normal-weight BMI is increasingly considered healthy. In contrast to values about body weight status, there was no variability in values about diet-related NCDs, or dental caries and erosion in children, which were perceived negatively in all identified studies. Limited information was identified on the potential impact of food marketing on values or whether consumers value "non-misleading" information.

Nine publications provided evidence related to resource implications. Evidence was identified in modelling studies and impact assessments, from both HICs and LMICs. The expected costs of such policies, expected health gains, expected health care cost savings and cost-effectiveness differed depending on country context, and the design and regulatory nature of policies. All identified modelling studies, however, found that policies to protect children from the harmful impact of food marketing would be cost-effective or cost-saving. Studies noted that, like other interventions targeting children, policies to protect children from the harmful impact of food marketing may take some time to have an impact. Costs included in various studies included planning, implementation and compliance costs; savings typically included health care cost savings. One study estimated that self-regulation would be less costly than government regulation, but that its effects would also be less because of presumed lower compliance.

Fifty-nine publications provided evidence related to human rights and equity. Policies to protect children from the harmful impact of food marketing are in accordance with human rights standards. The Universal Declaration of Human Rights; the International Covenant on Economic, Social and Cultural Rights; and the Convention on the Rights of the Child provide the legal framework for a child rights-based approach to optimal nutrition and health. Publications included in the review outlined how unregulated food marketing may jeopardize the fulfilment of the Convention on the Rights of the Child, including in relation to Article 24 (the right to health) and Article 17 (protection from material injurious to well-being). The Convention on the Rights of the Child articulates the rights of children, including those to health, adequate and nutritious food, privacy and freedom from exploitation. Countries that are State Parties to the Convention on the Rights of the Child have legal obligations to respect, protect and fulfil these rights and are required to take immediate action to implement these obligations as a matter of priority (12). State Parties to the Convention on the Rights of the Child are therefore obliged to take action toward the fulfilment and realization of children's rights, which should include actions to protect children from marketing of less-healthy foods, which inhibits children's rights, such as the rights to health, adequate and nutritious food, privacy and freedom from exploitation (12). The Committee on the Rights of the Child, in a 2013 general comment on the right of the child to the enjoyment of the highest attainable standard of health, stated that the marketing of HFSS foods

should be regulated (49). An area of increasing focus in relation to children's rights and food marketing is marketing through online media. In a 2021 general comment on children's rights in relation to the digital environment, the Committee on the Rights of the Child noted that State Parties should "make the best interests of the child a primary consideration when regulating advertising and marketing addressed to and accessible to children" (15). The general comment specifically addresses food marketing to which children are exposed by noting that State Parties "should regulate targeted or age-inappropriate advertising, marketing and other relevant digital services to prevent children's exposure to the promotion of unhealthy products, including certain food and beverages, alcohol, drugs, tobacco and other nicotine products" (15). The general comment also notes that "such regulations relating to the digital environment should be compatible and keep pace with regulations in the offline environment" (15). Special Rapporteurs on the right of everyone to the enjoyment of the highest attainable standard of health and the right to food have also emphasized the need for regulation of food marketing.

Limited evidence was identified on the impact on health equity of policies to protect children from the harmful impact of food marketing. However, research in HICs shows that children of lower SES are more exposed to food marketing than children of higher SES, and this can lead to, or worsen, health inequities. As such, policies to protect children from the harmful impact of food marketing can be expected to reduce health inequities. Reflecting this, a modelling study from Australia found that restrictions on food marketing to children on television were likely to have greater health benefits and greater health care cost savings for children of lower SES than for those of higher SES.

A total of 118 publications provided evidence related to acceptability. The evidence showed that acceptability of policies to protect children from the harmful impact of food marketing varied greatly by stakeholder. The existence of policies, or national action plans that recommend implementation of policies, indicates acceptability to government and policy-makers. For example, 40% of the 167 participating countries in the most recent global nutrition policy review reported including the regulation of food marketing to which children are exposed as an action area in national nutrition policies. However, few countries have implemented comprehensive policies to restrict food marketing to which children are exposed – 42 countries reported in the second global nutrition policy review that they have measures in place, which included guidelines or codes (voluntary or mandatory); few measures were integrated into national law. Evidence identified from HICs indicates that policies to protect children from the harmful impact of food marketing are largely acceptable to the public. Women were consistently more supportive than men. Support also varied by age, ethnicity and SES. There was a lack of evidence from LMICs. Industry generally opposed government-led restrictions, but offered voluntary self-regulatory policies as an alternative. When initiated by industry, such policies can be considered a strategy to prevent the introduction of strong, legally enforceable government regulations. Limited evidence was found relating to environmental acceptability.

Thirty-two publications provided evidence related to feasibility. The existence of policies in some countries to protect children from the harmful impact of food marketing points to their feasibility, although many countries are yet to develop or implement such policies. Evidence identified on feasibility showed that facilitators of the development and implementation of policies include strong political leadership, supporting evidence, intersectoral collaboration and community support. Barriers to development and implementation include complexity of regulatory processes, conflicting interests, a lack of financial and human resources, industry interference, a weak evidence base, and ambiguous categorization of, or lack of criteria for, foods for which marketing is to be restricted or banned. Facilitators of monitoring and enforcement include clear guidelines and protocols, independent monitoring, transparency and monetary penalties. Barriers to monitoring and enforcement include a lack of transparency and accountability, conflicting interests in reporting of compliance, methodological difficulties, and inadequate human and financial resources.

4. Good-practice statement and recommendation

Good-practice statement

Children of all ages should be protected from marketing of foods that are high in saturated fatty acids, *trans*-fatty acids, free sugars and/or salt.

Statement rationale

The good-practice statement was formulated by the NUGAG Subgroup on Policy Actions based on several key considerations.

- Children continue to be exposed to powerful marketing of HFSS foods, consumption of which is associated with negative health effects (8, 9). Such marketing is prevalent (including on packaging, in settings where children gather (e.g. schools and sports clubs), during children's viewing times and on children's channels, in youth magazines, and on social media) and uses many techniques appealing to young audiences (9). Digital marketing is of growing concern because it facilitates engagement, which can amplify the marketing message and overall impact of marketing (9).
- Food marketing negatively affects children's food choice or intended choice (odds ratio 1.77; 95% confidence interval (CI): 1.26–2.50) and dietary intake (standardized mean difference 0.25; 95% CI: 0.15–0.35) (10). It also affects children's product requests to adults for marketed foods (10), and negatively influences the development of children's norms about food consumption (9).
- Enabling children of all ages to achieve their full developmental potential is a human right and a critical foundation for sustainable development. Children's rights, including their rights to health, adequate and nutritious food, privacy, and to be free from exploitation, are threatened by the marketing of HFSS foods (11–13).
- Countries that are State Parties to the Convention on the Rights of the Child have a legal obligation to ensure that children's rights are respected, protected and fulfilled. According to general comments on the Convention, countries that are State Parties to the Convention should use appropriate regulation to ensure that marketing does not have adverse impacts on children's rights, and should make the best interests of the child a primary consideration when regulating marketing that is addressed and accessible to children (14, 15).

WHO recommendation

WHO suggests implementation of policies to restrict marketing of foods high in saturated fatty acids, *trans*-fatty acids, free sugars and/or salt to which children are exposed, and that such policies:

- be mandatory;
- protect children of all ages;
- use a government-led nutrient profile model to classify foods to be restricted from marketing;
- be sufficiently comprehensive to minimize the risk of migration of marketing to other media, to other spaces within the same medium or to other age groups; and
- restrict the power of food marketing to persuade.

(Conditional recommendation)

Recommendation remarks

These remarks provide context for the recommendation and are to facilitate interpretation and implementation.

- ‘Children’ refers to all human beings below the age of 18, as defined by the Convention on the Rights of the Child, unless, under the law applicable to children, majority is attained earlier.
- The impact of marketing is a function of both *exposure* and *power*.
 - Exposure is the reach (percentage of people in a target market who are exposed) and frequency (the number of times an average person is exposed) of a marketing communication, message or action. Policies should address children’s exposure to food marketing, irrespective of timing, venue or intended audience, and should therefore go beyond children’s media.
 - Power refers to the extent to which a marketing communication, message or action achieves its communications objectives. Power is influenced by the creative content and strategies used. The power of food marketing to persuade children relates to techniques appealing to children, including promotional characters, branding, emotional appeals, games, engagement techniques, interactive or downloadable content, and celebrity endorsements (9); these techniques impact dietary intake (10).
- Migration of marketing refers to the movement of marketing from restricted to unrestricted mediums or spaces (e.g. if a policy restricts marketing on television but not digital marketing, digital marketing may increase).
- A nutrient profile model is a tool for classifying foods according to their nutritional composition for reasons relating to preventing disease and promoting health. Nutrient profile models in the context of food marketing help define foods to be restricted from marketing and should align with national dietary guidelines.

Recommendation rationale

The recommendation was formulated by the NUGAG Subgroup on Policy Actions based on several key considerations (below and **Table 2**).

- Based on evidence from a systematic review that assessed the effectiveness of policies to restrict food marketing to which children are exposed (8), the group judged policies to have moderate desirable effects and trivial undesirable effects and judged the overall balance between desirable and undesirable effects to favour the intervention. Following application of the GRADE approach (see section 2.2), the certainty of the evidence from the systematic review was considered very low, therefore the group made a conditional recommendation. The group noted that the relevant policy evaluations were all observational studies, leading to lower certainty of evidence when applying the GRADE system, and that

the inconsistency of effect, which led to downgrading of the certainty of evidence for some outcomes, was partly due to variation in policy design elements.

- The group judged policies to be cost-effective, feasible and generally acceptable to government, policy-makers and the public, but less so to industry. Further, implementation of policies supports the realization of human rights and will probably support improved health equity.
- Some policy design elements are likely to be effective in protecting children from marketing of HFSS foods, but others are more likely to lead to unfavourable effects. The recommendation therefore specifies elements that maximize the effectiveness of policies, as identified in the systematic review (8).
 - Of studies evaluating voluntary policies, significantly more studies showed undesirable effects than desirable effects on exposure to, and power of, food marketing. This was not the case for studies evaluating mandatory policies (8).
 - Of studies evaluating policies designed to restrict food marketing to children that included only children aged 12 years or younger, significantly more studies showed undesirable effects than desirable effects on exposure to, and power of, food marketing. This was not the case for studies evaluating policies that included children older than 12 (8).
 - Of studies evaluating policies that used a company-led nutrient profile model to define foods to be restricted from marketing more studies showed undesirable effects than desirable effects on exposure to food marketing. This was not the case for studies evaluating policies that used a government-led nutrient profile model.
 - Some studies indicated that policies that were too narrow in scope (i.e. not comprehensive) may have led to migration of marketing (e.g. from children’s television programmes to non-children’s television programmes, from younger to older age groups) (16, 17).
 - Food marketing uses strategies that appeal to young audiences (9), and marketing using such strategies affects food choice and dietary intake (10). Studies indicated that mandatory policies result in reductions in use of powerful marketing strategies, such as the use of promotional characters and other persuasive techniques that appeal to children (8).

Table 2. Additional considerations by the NUGAG Subgroup on Policy Actions to determine the direction and strength of the recommendation

Decision criteria and judgement	Additional considerations
Magnitude of desirable effects of implementing a policy: moderate	<p>The policies included in the systematic review on the effectiveness of policies to restrict food marketing to which children are exposed varied greatly in their design. When comparing any policy with no or other policies, the group judged the magnitude of the desirable effects to be variable. Following discussions on the results of additional comparisons and of subgroup analysis, the magnitude of the desirable effects was judged as moderate. The group agreed that the policy design elements that were more likely to result in effects favourable to public health should be clearly listed in the recommendation; these included the policy approach used, target age group, and approach to defining foods whose marketing was to be restricted.</p> <p>Most evidence is from HICs, but the group considered it unlikely that the effects of the intervention would be substantially different in low- and middle-income countries (LMICs).</p> <p>Food environment policies are complex interventions. Many factors influence the relevant outcomes of interest (Fig. 2). The intervention’s impact on the outcomes of interest could be amplified if it is implemented alongside complementary food environment policies.</p>

Decision criteria and judgement	Additional considerations
Magnitude of undesirable effects of implementing a policy: trivial	<p>No undesirable effects on health outcomes of implementing policies to restrict food marketing to which children are exposed were identified in the reviews.</p> <p>Based on the results of the systematic review and experience in countries, the group noted that policies that are too narrowly defined could have undesirable effects, including:</p> <ul style="list-style-type: none"> • migration of marketing to other media; • migration of marketing to other spaces within the same medium or to other age groups; and • risk of increased marketing of brands in place of marketing of specific products. <p>Overall, the magnitude of the undesirable effects of implementing a policy to restrict food marketing to which are children are exposed was judged as trivial, if the approach to marketing restrictions is comprehensive and if policy design uses elements identified by the additional comparisons and subgroup analyses as favourable to public health.</p>
Balance of desirable and undesirable effects: probably favours the intervention	<p>Based on the available evidence, country experience and discussions on the results of additional comparisons and of subgroup analyses, the balance of desirable and undesirable effects was judged to probably favour the intervention.</p>
Overall certainty of evidence: very low	<p>There was a high level of heterogeneity in the evidence.</p> <p>The inconsistency of effect was partly due to variation in policy design elements (i.e. the policy approach, target age group and approach to defining foods to be restricted from marketing).</p> <p>The relevant policy evaluations were all observational studies, leading to lower certainty of evidence when applying the GRADE system.</p>
Cost-effectiveness: favours the intervention	<p>Evidence was based on modelling studies and showed the intervention was cost-effective.</p>
Resources required: moderate costs	<p>The costs should be considered in the context of, and relative to, total government expenditure on health and preventive health.</p> <p>Both one-off costs (e.g. policy drafting and enactment) and ongoing costs (e.g. monitoring and enforcement) should be considered.</p> <p>The costs considered should be costs to government and not costs to other actors (e.g. industry).</p> <p>Country experience showed that some countries may previously have underestimated the resources required.</p>
Impact of policy implementation on equity: probably increased	<p>Research, mainly from HICs, shows that children of lower SES are more exposed to food marketing than children of higher SES, which can lead to, or worsen, health inequities.</p> <p>Low-agency public health interventions (i.e. public health interventions that do not rely on, or rely less on, the conscious actions of individuals) are likely to increase health equity.</p>
Impact of policy implementation on human rights: increased	<p>Children's rights are an important consideration for country action to restrict marketing. New marketing media and techniques, particularly digital marketing, are of increasing concern.</p> <p>Current safeguarding mechanisms permitting advertising in the digital space (e.g. age-appropriate videos on social media platforms) are unlikely to work in practice.</p> <p>Additional challenges arise with increased digital marketing, including respecting the right to privacy.</p>

Decision criteria and judgement	Additional considerations
People's values related to the outcomes of policy implementation: probably no important uncertainty or variability	The group noted the importance of valuing children's health, the need to protect the health of the vulnerable, and the role of governments in enabling decision-making that protects health.
Acceptability of the policy to key actors: varies	<p>Generally, policies are acceptable to government, policy-makers and the public, but less so to industry.</p> <p>Acceptability to industry depends on the type of policy proposed. Industry generally prefers voluntary to mandatory policies.</p> <p>Acceptability to government may vary between ministries. This could relate to industry being a core stakeholder for some ministries (e.g. industry, commerce and communications), and to concerns about potential economic impacts on related sectors.</p> <p>Most evidence is from HICs. It is unclear whether acceptability would be different in LMICs.</p>
Feasibility of implementing the policy: yes	<p>Countries that have successfully implemented policies have shown that policies can be implemented, and that well-designed policies do not pose substantive trade concerns.</p> <p>The nutrient profile models developed by the WHO regional offices can be adapted by countries; they help identify foods to be restricted from marketing and may increase feasibility.</p> <p>Industry influence may be a barrier to implementation of effective policies.</p> <p>Providing clear guidance to countries may remove fears of complexity and increase feasibility.</p>

HIC: high-income country; LMIC: low- and middle-income country; SES: socioeconomic status.

5. Implementation considerations

This chapter is not intended to provide an exhaustive list of implementation considerations. Instead, it aims to highlight some key considerations. These considerations:

- emerged from the systematic review on the effectiveness of policies to restrict food marketing to which children are exposed (8);
- were mentioned by the NUGAG Subgroup on Policy Actions in the development of this guideline; and/or
- come from existing implementation resources – particularly the 2023 WHO/UNICEF publication *Taking action to protect children from the harmful impact of food marketing: a child rights-based approach* (57) and the 2012 WHO publication *A framework for implementing the set of recommendations on the marketing of foods and non-alcoholic beverages to children* (47).

The WHO/UNICEF publication *Taking action to protect children from the harmful impact of food marketing: a child rights-based approach* provides step-by-step guidance through the four main stages in the policy cycle (preparation; development; implementation; and monitoring and evaluation) – integrating both a public health lens and a child rights lens – as summarized in **Table 3** (57). In line with this guideline’s good-practice statement, policies should be formulated in the best interests of children, and apply the policy design elements specified in this guideline’s recommendation.

During the preparation stage, it is important to consider the country context. This includes the country’s:

- nutritional situation;
- cultural context;
- locally available foods;
- dietary customs;
- available resources and capacities;
- existing governance structures and mechanisms (including mechanisms to identify and manage conflicts of interest and to safeguard public health policies and enforcement mechanisms);
- policy context (relevant legal and policy frameworks, potential regulatory pathways and the overall political economy); and
- stakeholders with an interest in the policy outcome and whether, or at what stage, they may be engaged in the policy process to optimise policy effectiveness and implementation while protecting public health objectives (see **Fig. 2**).

The review of contextual factors highlighted factors that may facilitate the development and implementation of policies to protect children from the harmful impact of food marketing. These include strong political leadership, supporting evidence, community support, intersectoral collaboration, and mechanisms to protect the public interest and avoid conflict of interest (11). Factors that hinder development and implementation include complex regulatory processes, conflicts of interest, lack of financial and human resources, industry interference, a weak evidence base, and ambiguous categorization of (or a lack of criteria for categorization of) foods for which marketing is to be restricted or banned (11).

Given that marketing and regulatory landscapes are complex, a situation analysis of both is a useful tool for policy development (47). Reviewing existing laws and policies is important to identify gaps, and potential regulatory pathways and mechanisms for the implementation of marketing restrictions. Potentially relevant

Table 3. Steps involved in each main stage of the policy cycle for policies to protect children from the harmful impact of food marketing (adapted from 57)

Preparation	Development	Implementation	Monitoring and evaluation
<ul style="list-style-type: none"> • Gather information on the health and nutrition situation in the country • Collect information on exposure and power of marketing • Review existing laws and policies and identify potential legal entry points for reform • Identify the lead government authority/ agency • Identify key stakeholders • Advocate for political buy-in, form a steering committee, and anticipate opposition • Manage conflicts of interest • Engage with children, civil society organizations and academia throughout the process 	<ul style="list-style-type: none"> • Agree on the intended instrument to implement the policy measure, the objective(s) and scope; define the key components of the restrictions and ensure alignment with other policies and laws • Conduct a child rights impact assessment of policy options • Consult the public on the proposed policy options • Consider, and prepare to defend, possible legal challenges against the policy • Plan for compliance monitoring and enforcement • Plan for monitoring and evaluation • Allocate budget to support implementation, monitoring, enforcement and evaluation 	<ul style="list-style-type: none"> • Finalize the instrument and implementation plans • Set up the monitoring and enforcement system (including protocol development) • Build capacity to implement, monitor and enforce • Raise public awareness • Apply meaningful sanctions for violations 	<ul style="list-style-type: none"> • Establish a framework to monitor and evaluate policy impact – define methods, indicators and data needs • Monitor the extent of implementation of, and compliance with, the instrument • Leverage the Convention on the Rights of the Child reporting cycle for additional evaluation purposes and involve national human rights institutions • Communicate results of evaluation • Revise and revisit

controls and agencies to include in a regulatory landscape situation analysis vary between countries, but could include:

- public health policies, legislation and institutions;
- media controls and regulating authorities;
- child protection legislation and agencies;
- regulation and enforcement agencies relevant to food labelling, composition and distribution;
- regulations and institutions relevant to consumer protection and consumer rights;
- planning and zoning controls on food retailing, catering and outdoor marketing; and
- school regulations and education authorities (47).

To implement the recommendation in this guideline, countries may choose to strengthen existing policies and/or develop and implement new policies.

During the preparation stage, it is also important for policy developers to anticipate opposition (57). The 2023 WHO/UNICEF publication *Taking action to protect children from the harmful impact of food marketing: a child rights-based approach* lists common arguments and legal challenges against policies to protect

children from the harmful impact of food marketing. It provides counterarguments based on a child rights-based approach and the available scientific evidence, and gives steps to strengthen the government's legal position in the event of challenge (57). Clear, transparent and robust conflict of interest guidelines and mechanisms that cover all stages of the policy cycle should also be adopted during the preparation stage (57).

During the development stage, when a government is deciding on key design issues, some factors should be borne in mind to maximize effectiveness. These include:

- the instrument to be used to implement restrictions on food marketing to which children are exposed;
- the regulatory objectives;
- the scope and definitions of the key components of the policy (57);
- the policy design elements specified by the recommendation in this guideline (i.e. taking a mandatory approach, protecting children of all ages, using a government-led nutrient profile model, being sufficiently comprehensive, restricting the power of food marketing to persuade).

The nutrient profile models for regulating food marketing to which children are exposed developed by the WHO regional offices (2–7) provide an existing tool that countries can use.

As highlighted by the 2012 WHO report *A framework for implementing the set of recommendations on the marketing of foods and non-alcoholic beverages to children*, efforts to restrict marketing must consider how brands are marketed (47). If brand marketing is not included within a policy's scope, a possible unintended consequence may be an increase in brand advertising and sponsorship by brands synonymous with less-healthy products (in place of marketing for the products themselves) (57). Possible approaches that countries could use to restrict brand marketing include classifying brands as permitted or not permitted based on whether their top-selling products are classified as healthy or unhealthy (47) and restricting marketing of brands that are synonymous with less-healthy products (69).

When agreeing on the scope and defining the key components of a policy, an additional key consideration is the incorporation of provisions for cross-border marketing (i.e. marketing via material that is produced in one country and sold, shared, downloaded or consumed in others) (57). Cross-border marketing presents some challenges to national policies. However, government lawyers can help policy-makers to find entry points for incorporating and enforcing such provisions within domestic jurisdictions (57). Recommendation 8 of the 2010 WHO *Set of recommendations on the marketing of foods and non-alcoholic beverages to children* noted that, to ensure significant impact of national actions, effective international collaboration is essential (51). Also important is regional collaboration, in which cross-border marketing is shared between neighbouring countries or those with close cultural and commercial ties.

During the development stage, the resources required for policies to protect children from the harmful impact of food marketing should be considered. Like other interventions targeting children, policies to protect children from the harmful impact of food marketing may take considerable time to have an impact on population health (11). Long-term political commitment to such policies – including resource allocation for enforcement, and continued monitoring for compliance and achievement of objectives – is therefore needed if policies are to be effective. Such commitment should be across all relevant ministries, because policy implementation may involve ministries other than health (e.g. food regulators, consumer affairs, media and communications, trade).

During the implementation stage, a monitoring and enforcement system should be established to assist in identifying violations and enforcing compliance (57). The enforcement system should be both proactive (acting on infringements identified through monitoring) and reactive (open to receiving notification of possible infringements) (57) and apply enforceable sanctions that are sufficiently meaningful to deter non-compliance. The monitoring for compliance during the implementation stage should be accompanied by monitoring and evaluation of the policy impact during the monitoring and evaluation stage (57). Additional information on considerations for evaluation design is provided in section 6.2.

Finally, a comprehensive policy approach is needed to create enabling and supportive food environments. The recommendation in this guideline should be considered together with those in other WHO guidelines on

policies to improve the food environment, including WHO guidelines on school food and nutrition policies (60), nutrition labelling policies (58) and fiscal policies (59). Also relevant for improving the food environment and promoting healthy diets are the WHO guideline on school health services (70); the global standards for health-promoting schools (71); WHO guidelines on sodium intake (61) and sugars intake (62); and the recommendations of the WHO Commission on Ending Childhood Obesity (54). WHO guidelines on total fat, saturated fatty acids and *trans*-fatty acids, polyunsaturated fatty acids, carbohydrates, use of non-sugar sweeteners and use of low-sodium salt substitutes are all forthcoming.

More detailed guidance on the implementation of policies to protect children from the harmful impact of food marketing should be consulted before implementing the recommendation in this guideline. Selected existing global and regional implementation resources are listed in **Box 3**.

Box 3. Resources for development and implementation of policies to protect children from the harmful impact of food marketing

Global

- *A child rights-based approach to food marketing: a guide for policy makers* (12)
- *A framework for implementing the set of recommendations on the marketing of foods and non-alcoholic beverages to children* (47)
- *Implementing policies to restrict food marketing: a review of contextual factors* (11)
- *Protecting children from the harmful impact of food marketing: policy brief* (72)
- *Taking action to protect children from the harmful impact of food marketing: a child rights-based approach* (57)

Regional

- *Monitoring and restricting digital marketing of unhealthy products to children and adolescents: report based on the expert meeting on monitoring of digital marketing of unhealthy products to children and adolescents, Moscow, Russian Federation, June 2018* (73)
- *Regional action framework on protecting children from the harmful impact of food marketing in the Western Pacific* (74)
- *Tackling food marketing to children in a digital world: trans-disciplinary perspectives – children's rights, evidence of impact, methodological challenges, regulatory options and policy implications for the WHO European Region* (46)

Nutrient profile models

- *Nutrient profile model for the marketing of food and non-alcoholic beverages to children in the WHO Eastern Mediterranean Region* (2)
- *Nutrient profile model for the WHO African Region: a tool for implementing WHO recommendations on the marketing of foods and non-alcoholic beverages to children* (30)
- *Pan American Health Organization nutrient profile model* (7)
- *WHO nutrient profile model for South-East Asia Region* (4)
- *WHO nutrient profile model for the Western Pacific Region: a tool to protect children from food marketing* (5)
- *WHO Regional Office for Europe nutrient profile model; 2nd edition* (6)

6. Research gaps

Based on the results of the systematic reviews, the narrative review, the review of contextual factors, the discussions of the NUGAG Subgroup on Policy Actions, and input received during peer review and the public consultation, a number of research gaps and considerations were identified. They reflect understudied thematic areas and geographic locations, as well as methodological issues. These will be important when updating this guideline, and for further advocacy and action to protect all children from the harmful impact of food marketing.

As noted previously, the evidence on which this guideline is based is specific to food marketing. Accordingly, it does not include evidence on the broader question of the impact of marketing, or on the broader question of the effectiveness of policies to restrict marketing. It is inherent in the search strategy and selection criteria used in the systematic reviews that broader evidence on marketing and evidence specific to adults is excluded from the evidence underpinning the guideline. This evidence is also not used for purposes of triangulation or checking the conclusions drawn against the broader body of evidence on the impacts of marketing and marketing restrictions.

6.1 Overarching research gaps

Overall, most research was from HICs. High-quality studies from LMICs would improve the representativeness of evidence underlying this guideline and provide additional information on contextual factors that may affect the implementation of policies to protect children from the harmful impact of food marketing.

Impact of food marketing

Much of the research identified in the systematic review on the impact of food marketing on children focused on proximal outcomes (e.g. food preferences, food choice or intended choice, dietary intake); few suitable studies were available for more distal outcomes (e.g. dental caries/erosion, body weight/BMI/obesity, diet-related NCDs) (10). Long-term studies that consider the impact of food marketing on more distal outcomes would be valuable when updating this guideline. Given the substantial methodological challenges – for example, disentangling the impact of food marketing from the complex array of other factors that contribute to outcomes such as body weight/BMI/obesity and diet-related NCDs that develop gradually over time – high-quality studies on proximal outcomes will remain valuable. As well, most studies on the impact of food marketing on dietary intake focused on the impact of acute exposure to marketing on acute dietary intake; studies that consider the sustained effects of food marketing on dietary intake would also be valuable.

Much of the research on the impact of food marketing to date has focused on food marketing via television. As the marketing landscape continues to evolve, additional research could improve understanding of the impact of food marketing via other marketing media (e.g. outdoor advertising, digital marketing, sponsorship), as well as of the combined effect of different types of marketing.

Additional studies on the impact of brand marketing – including on possible brand spillover and health halo effects – would be beneficial in closing loopholes in some policies to restrict food marketing to which children are exposed that permit the marketing of brands (as distinct from products and services).

The potential impact of food marketing on adults, including those who are caregivers and who purchase food for children, was outside the scope of this guideline. However, research in this area may be important when updating this guideline.

Effectiveness of policies

As with the systematic review on the impact of food marketing on children, much of the research identified in the systematic review on the effectiveness of policies to restrict food marketing to which children are exposed focused on proximal outcomes (e.g. exposure to marketing, power of marketing); no suitable studies were available for more distal outcomes (e.g. dental caries/erosion, body weight/BMI/obesity, diet-related NCDs) (8).

Studies on the effectiveness of policies on more distal outcomes would be valuable when updating this guideline. The same methodological challenges discussed above apply, as well as a need to be realistic about the extent to which any one intervention can be expected to affect these outcomes on its own.

Studies included in the systematic review reported on the effect of policies on exposure to, or power of, food marketing via a single marketing medium only (e.g. television, packaging). To ensure the effectiveness of policies and mitigate unintended consequences, there is a need for studies that monitor the possible migration of food marketing within one medium (e.g. from child-focused to family-focused television content) or to other marketing media (e.g. outdoor advertising, sponsorship). Current research on the impact of policies largely focuses on changes to food marketing on children's television programmes, or marketing of food products of appeal to children – changes to overall exposure to food marketing are a knowledge gap. The use of indirect evidence on policies to restrict marketing of products or services beyond food could also be explored to further support policy actions to protect children from the harmful impact of food marketing.

Comparative studies that include multiple countries would be beneficial when updating this guideline. Information on the scope of current national policies and whether they cover cross-border food marketing would also be useful.

Contextual factors

Although the review of contextual factors found evidence that children of lower SES are more exposed to food marketing than children of higher SES, it found few studies that directly examined the impact on health equity of policies to protect children from the harmful impact of food marketing (11). Future studies should therefore include data disaggregated by characteristics such as SES, sex, gender and rurality (see section 6.2).

During the discussions of the NUGAG Subgroup on Policy Actions, an expert noted that, in some countries, there may be concerns that prohibition of sponsorship of children's sport might reduce children's opportunity to play sport. The review of contextual factors found some evidence relating to this. For example, an impact assessment of a draft policy that included restrictions on sponsorship of children's events noted a possible "public outcry" if events stopped as a result of funding limitations due to restrictions on marketing (11). Further research on the acceptability and feasibility of restrictions on sports sponsorship would be beneficial.

6.2 Considerations for design of future evaluations

For many of the outcomes of interest in the systematic reviews on the impact of food marketing on children (10) and the effectiveness of policies to restrict food marketing to which children are exposed (8), the certainty of the evidence was low or very low. Following application of the GRADE approach (see section 2.2), the certainty of the evidence was often downgraded because of a serious or very serious risk of bias in the included studies, or serious or very serious inconsistency of effect. The certainty of the evidence could be improved by ensuring that future studies address common issues related to risk of bias – for example, for studies on the impact of food marketing on children, not providing information on non-respondents or not controlling for confounding factors. The inconsistency of effect for studies on the effectiveness of policies to restrict food marketing to which children are exposed also reflects differences in study design, sampling approach and effect measure. Use of standardized monitoring procedures could potentially reduce the inconsistency of effect between studies and thereby improve the certainty of the evidence. A diverse array of tools has been used in research that assesses the extent of policy implementation, and implementation processes for food environment policies (75). Although guidance on appropriate study

designs and methods for policy evaluation remains limited, results from current research projects can be used to strengthen policy evaluations (76). Potential standardized monitoring procedures include those proposed by the WHO Regional Office for Europe (77) and the International Network for Food and Obesity/Non-communicable Diseases Research, Monitoring and Action Support (INFORMAS) (78). As the use of digital marketing (including programmatic advertising and user-generated content) increases, tools for monitoring such marketing, such as the CLICK tool for monitoring digital food marketing developed by the WHO Regional Office for Europe (73) should also be considered.

A number of studies in the systematic review on the effectiveness of policies to restrict food marketing to which children are exposed lacked effect estimates and/or *P* values. This prevented pooled analysis; instead, vote counting based on direction of effect was used, which provided no information on the magnitude of effect and did not account for differences in the relative size of included studies. Future studies should include effect estimates and *P* values.

In both systematic reviews, analyses by SES, sex, gender and rurality were not possible, because data on these characteristics were either reported by too few studies for each outcome or not reported by exposure groupings. Where possible, future studies should include data disaggregated by these characteristics to enable analysis of the impact on health equity of food marketing and of policies to protect children from its harmful impact.

Other considerations for the design and reporting of future evaluations of policies to restrict food marketing to which children are exposed include a need for more detailed information on policies (e.g. enforcement mechanisms); this would allow more detailed examination of policy design elements that may impact effectiveness.

Implementation research addresses both policy implementation processes and relevant contextual factors (79). Integrating implementation research into policy and programmatic decision-making processes from the start can support collaboration between policy implementers and researchers to ensure that such research is useful (79). Qualitative comparative analysis can provide further insights into regulatory governance conditions that lead to food environment policies that can improve population nutrition outcomes (80). Systems thinking can be useful in generating robust evidence about which policies are the most effective. This applies to the policy-making process, problem identification and policy analysis and, after a policy is implemented, policy evaluation (81).

7. Uptake, monitoring and updating of the guideline

This guideline will be disseminated to Member States through the networks of WHO regional offices and country offices, WHO collaborating centres, United Nations partner agencies and civil society agencies, relevant nutrition webpages on the WHO website¹ and the electronic mailing lists of the WHO Department of Nutrition and Food Safety, among others. The guideline will also be disseminated at relevant global, regional and national meetings. Specifically, it will be used to support policy dialogues being held as part of the WHO's work to accelerate action to stop obesity. The guideline is an important part of the technical package to support implementation of the recommendations for the prevention and management of obesity over the life course, and related targets adopted by the 75th World Health Assembly.²

The impact of this guideline can be evaluated by assessing its adoption and adaptation across countries. Evaluation at the global level will be through the periodically conducted Global Nutrition Policy Review and the WHO NCD Country Capacity Survey, published through the WHO Global database on the Implementation of Nutrition Action (GINA)³ and will also consider independent researcher input. GINA is a centralized platform developed by the WHO Department of Nutrition and Food Safety for sharing information on nutrition actions in public health practice implemented around the world. GINA currently contains information on thousands of policies (including legislation), nutrition actions and programmes in more than 190 countries. It includes data and information from many sources, including the first and second WHO global nutrition policy reviews conducted in 2009–2010 and 2016–2017, respectively (55, 82). By providing programmatic implementation details, specific country adaptations and lessons learned, GINA serves as a platform for monitoring and evaluating how policy guidelines are being translated and adapted in various countries. The WHO NCD Country Capacity Survey is a global survey of all Member States that provides a periodic assessment of national capacity for NCD prevention and control, including in several nutrition-related areas.

In line with the *WHO handbook for guideline development* (56), the recommendation in this guideline will be regularly updated, based on new data and information. The WHO Department of Nutrition and Food Safety will be responsible for coordinating updates of the guideline, following the formal procedure described in the *WHO handbook for guideline development* (56). When the guideline is due for review, WHO will welcome suggestions for additional questions that could be addressed in the guideline.

If there are concerns that the guideline's recommendation may no longer be valid, the Department of Nutrition and Food Safety will communicate this information, together with plans to update the guideline, to relevant actors via announcements on the Department of Nutrition and Food Safety website and electronic mailing lists, as well as communicating directly with actors, as necessary.

¹ <http://www.who.int/nutrition/en/>

² https://apps.who.int/gb/ebwha/pdf_files/WHA75/A75_10Add6-en.pdf

³ <https://extranet.who.int/nutrition/gina/en/home>

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Annexes

Annex 1.

Global calls to action and commitments related to food environment policies

The WHO guidelines on policies to improve the food environment will contribute to implementation of a number of calls to action relating to nutrition and health, including:

- the Comprehensive Implementation Plan on Maternal, Infant and Young Child Nutrition;
- the Global Action Plan for the Prevention and Control of Noncommunicable Diseases 2013–2030;
- the Political Declaration of the High-level Meeting of the United Nations General Assembly on the Prevention and Control of Non-communicable Diseases held in New York in September 2011 and the outcome document (A/RES/68/300) of the High-level Meeting of the United Nations General Assembly on the Prevention and Control of Non-communicable Diseases held in New York in July 2014;
- the recommendations of the Commission on Ending Childhood Obesity established by the WHO Director-General in May 2014;
- the commitments of the Rome Declaration on Nutrition and recommended actions in the Framework for Action, which recommends a set of policy options and strategies to promote diversified, safe and healthy diets at all stages of life; these were adopted by the Second International Conference on Nutrition in 2014 and endorsed by the 136th session of the WHO Executive Board (in January 2015) and the Sixty-eighth World Health Assembly (in May 2015), which called on Member States to implement the commitment of the Rome Declaration on Nutrition across multiple sectors;
- the goals of the United Nations Decade of Action on Nutrition (2016–2025), declared by the United Nations General Assembly in April 2016, which include increased action at the national, regional and global levels to achieve the commitments of the Rome Declaration on Nutrition by implementing policy options included in the Framework for Action and evidence-informed programme actions;
- the acceleration plan to stop obesity adopted at the Seventy-fifth World Health Assembly in May 2022, together with the intermediate outcome and process targets; and
- the 2030 Agenda on Sustainable Development and the Sustainable Development Goals, particularly Goal 2 (“zero hunger”) and Goal 3, Target 4 (“reduce by one third premature mortality from non-communicable diseases through prevention and treatment”).

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Annex 7.

Guidance questions for the review of contextual factors

Factor	Guidance questions
Values	<ul style="list-style-type: none">• What are the values people affected by the intervention assign to the intervention health outcomes?
Resource implications	<ul style="list-style-type: none">• What is the value for money of the intervention in terms of cost–benefit ratio/ cost-effectiveness/cost utility, including the impact on national/global health care costs in the short term and long term, and the impact on government revenue (including the use of additional revenue; and issues of non-compliance, inflation, black market or cross-border trade)?
Equity	<ul style="list-style-type: none">• What is the impact of the intervention on (health) (in)equality and/or (health) (in)equity, including food and nutrition security (unequal and/or unfair access to food)?• Is the intervention sensitive to sex, gender, age, ethnicity, religion, culture, language, sexual orientation/gender identity, disability status, education, socioeconomic status, place of residence (including issues of social stigma, household expenditure, financial regressivity, and jobs/employment)?
Human rights	<ul style="list-style-type: none">• Is the intervention in accordance with human rights standards, and what is the impact of the intervention on human rights (including the ability to make a competent, informed and voluntary decision)?
Acceptability	<ul style="list-style-type: none">• Is the intervention acceptable to governments and policy-makers, the public and consumers, and industry?• Is the intervention acceptable to, and in agreement with, existing cultural and religious norms and beliefs?• Is the intervention aligned with environmental goals and considerations?
Feasibility	<ul style="list-style-type: none">• What is the feasibility of developing and implementing the intervention (including barriers and facilitators)?• What is the feasibility of monitoring and enforcement of the intervention (including barriers and facilitators)?• Does the intervention have an impact on change within existing health or food systems (including resulting in additional interventions to improve the nutrition and health of populations)?

Annex 8.

GRADE evidence profile

PICO: What is the effect in children on the outcomes of interest of implementing a policy to restrict food marketing to children, compared with implementing no policy – or a different policy?

Population: Children

Intervention: All policies that aim to restrict food marketing to children, comprising mandatory, legally enforceable measures (including statutory approaches, regulations, legislation or orders used by a jurisdiction’s legal system) and voluntary measures (including self-regulatory measures, pledges or codes), but excluding action plans, strategies, programmes and initiatives

Comparison: Varied by intervention. For voluntary measures, the comparison was before implementation of the measure or by non-signatory companies after implementation of the measure; for mandatory policies, the comparison was marketing activity under a previous voluntary measure, at the point of partial implementation of the mandatory policy, or before implementation of the policy.

No. of studies	Study design	Characteristics of studies					Impact	Certainty	Importance
		Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations			
Exposure to marketing									
37	Observational studies	Not serious	Very serious ^a	Not serious	Not serious	Not serious	None	⊕○○○ Very low	Critical
Overall, the evidence is very uncertain about the effect of implementing any food marketing policies on exposure to food marketing. 4 studies (2 assessing mandatory policies (1 comparing mandatory policy with no policy (1) and 1 comparing mandatory policy with voluntary measure (2)), and 2 comparing voluntary measure with no measure (3, 4) reported a clear effect favouring the intervention (i.e. significantly lower exposure to food marketing with policy; no effect sizes provided).									

Characteristics of studies								Importance
No. of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Impact	
							<p>11 studies (5 comparing mandatory policy with no policy and 6 comparing voluntary measure with no measure (5–15)) reported an unclear effect potentially favouring the intervention (i.e. narratively reported lower exposure to food marketing with policy). Only 1 of the 11 studies reported an effect size : Hebden 2011 (7) reported a significant IRR of 0.73 (95% CI: 0.60–0.88) for change in non-core fast food advertising pre-post policy, but mean frequency was 1.0 advertisements/hour at both time points, and the reduction was relative to all fast food advertising (which had increased) only.</p> <p>7 studies (5 of which compared voluntary measure with no measure (16–22)) reported no effect. Adams 2012 (16) reported a non-significant OR of 1.05 (99% CI: 0.99–1.12) for person-minute views of food advertisements pre- vs post-mandatory policy, and King 2011 (18) reported a non-significant IRR of 1.05 (95% CI: 0.84–1.17) for average number of non-core food advertisements per hour pre- vs post-voluntary measure.</p> <p>11 studies (10 of which compared voluntary measure with no voluntary measure (23–33)) reported an unclear effect potentially favouring the control (i.e. narratively reported lower exposure to food marketing).</p> <p>4 studies (1 comparing a mandatory policy with a voluntary measure (34); and 3 comparing voluntary measures with no voluntary measure (35–37)) reported a clear effect favouring the control (i.e. significantly lower exposure to food marketing in the comparison group). Potvin Kent 2018 (36) reported a significant OR of 2.53 (95% CI: 2.52–2.53) for the analysis of the volume of food advertisements for less-healthy items between signatory and non-signatory companies.</p>	Certainty

Characteristics of studies							Impact	Certainty	Importance
No. of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations			
							<p>The effect on marketing varied when comparing the predefined policy design elements. Data allowed several focused comparisons and subgroup analyses. Results of these additional analyses indicated that studies were more likely to report effects clearly or potentially favouring the intervention when evaluating the following.</p> <ul style="list-style-type: none"> Mandatory policies (5/7 studies) relative to voluntary measures (8/26 studies). A significantly greater proportion of studies evaluating voluntary measures showed undesirable effects for public health than showed desirable effects; this was not the case for mandatory policies. Few studies directly compared mandatory policies with voluntary measures (1/3 favoured the intervention but this was non-significant). The single study exploring different stages of mandatory policy implementation indicated that greater implementation may result in more desirable effects. Policies designed to restrict food marketing to children >12 years (6/8 studies favoured or potentially favoured the intervention) relative to those ≤12 years (7/25 studies). Exposure to television food advertising (12/29 studies) or product packaging (1/1 – a single study) relative to those assessing exposure via digital media (0/3). Policies using a government-led nutrient profile model to classify foods (5/6) compared with company-specific models (8/25). 		

Characteristics of studies							Impact	Certainty	Importance
No. of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations			
							<p>Additional analyses on the approach used to classify foods to which the restrictions apply (not in Appendix D (16)):</p> <p>For studies of policies that used government-led nutrient profile models (n = 6).</p> <p>One study clearly favoured the intervention (50.0% [95% CI: 9.5% to 90.5%], P = 1.00), four studies potentially favoured the intervention (80.0% [95% CI: 29.9% to 99.0%], P = 0.371), and five studies clearly or potentially favoured the intervention (83.3% [95% CI: 36.5% to 99.1%], P = 0.221).</p> <p>For studies of policies that used company-led models (n = 25).</p> <p>Two studies clearly favoured the intervention (10.5% [95% CI: 1.8% to 34.5%], P = 0.001), six potentially favoured the intervention (26.1% [95% CI: 11.1% to 48.7%], P = 0.037), and eight studies clearly or potentially favoured the intervention (32.0% [95% CI: 15.7% to 53.6%], P = 0.110).</p>		
Power of marketing									
18	Observational studies	Not serious	Very serious ^b	Not serious	Not serious	None	<p>The evidence is very uncertain about the effect of food marketing policies on power of food marketing.</p> <p>3 studies (2 assessing mandatory policies, the first comparing policy with no policy and the second comparing mandatory policy with voluntary measure, and 1 comparing voluntary measure with no voluntary measure (10, 19, 21)) reported a clear effect favouring the intervention (i.e. significantly less powerful food marketing with policy).</p>	⊕○○○ Very low	Critical

Characteristics of studies							Importance
No. of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	
							<p>Impact</p> <p>2 studies (comparing mandatory policy with no policy (11, 12)) reported an unclear effect potentially favouring the intervention (i.e. narratively reported less powerful food marketing with policy).</p> <p>1 study reported no effect (38).</p> <p>6 studies (all of which compared voluntary measure with no measure (18, 22, 23, 25, 32, 39)) reported an unclear effect potentially favouring the control (i.e. narratively reported less powerful food marketing).</p> <p>6 studies (5 of which compared voluntary measure with no measure (20, 33–35, 37, 40)) reported a clear effect favouring the control (i.e. significantly less powerful food marketing). Of all studies reporting on this outcome, only Effertz 2012 (37) provided an effect size, a significant OR of 4.188 reflecting a reduction post- vs pre-voluntary measure in propensity for non-core food advertisements containing a promotional character.</p> <p>Data allowed several focused comparisons and subgroup analyses. Results of these additional analyses indicated that studies were more likely to report effects clearly or potentially favouring the intervention when evaluating the following.</p> <ul style="list-style-type: none"> Mandatory policies (3/3 studies) relative to voluntary measures (1/3 studies). A significantly greater proportion of studies evaluating voluntary measures showed undesirable effects for public health than showed desirable effects; this was not the case for mandatory policies. Only 2 studies directly compared mandatory policies with voluntary measures (1/2 favoured the intervention, but this was non-significant), and no study explored different stages of policy implementation. <p>Certainty</p>

Characteristics of studies							Impact	Certainty	Importance
No. of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations			
							<ul style="list-style-type: none"> • Policies designed to restrict food marketing to children >12 years (3/4 studies favoured or potentially favoured the intervention) relative to those ≤12 years (1/12 studies). • Effectiveness of policies to restrict use of promotional characters (3/10 studies) relative to those assessing use of a broader range of child-appealing persuasive techniques (1/5 studies) or animation techniques (0/1 study). • Power of television food advertising (3/10 studies) relative to power of marketing via digital media (0/3 studies) or product packaging (1/3 studies). 		
Purchasing/sales or intended purchasing									
5	Observational studies	Not serious	Not serious	Not serious	Not serious	None	<p>The evidence suggests that food marketing policies may result in a reduction in food purchasing.</p> <p>4 studies (2 reporting on mandatory policies (41, 42); and 2 reporting on voluntary measures (3, 4)) reported a clear effect favouring the intervention (i.e. significantly lower food purchasing with policy/measure). Dhar 2011 (41) reported a difference-in-difference estimate of -0.102 (indicating that the ban led to a decrease in purchase propensity by 10.2%). Huang 2013 (3) reported a change in relative purchase frequency (%) of -2.486 (±0.684); $P < 0.01$.</p> <p>Favouring the intervention, Dhar 2011 (41) reported that the policy led to a 10.2% reduction in fast food purchase propensity, Huang 2013 (3) reported a 2.486% reduction in purchasing of a confectionery item, Silva 2015 (42) reported a reduction on HFSS expenditure per capita per quarter of £6.2 for foods and £2.7 for drinks, and Lwin 2020 (4) reported that volume of unhealthy food in household pantries</p>	⊕⊕○○ Low	Critical

Characteristics of studies							Impact	Certainty	Importance
No. of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations			
							decreased from 721.65 to 526.16; all studies reported statistically significant <i>P</i> values (<0.05, <0.01 or <0.001). 1 study evaluating a United States city ordinance reported a clear effect favouring the control (i.e. significantly lower food purchasing) (43). Purchasing of child meals (not meeting nutritional criteria set by the ordinance) significantly increased with the policy (from 35.8% to 47.3%; <i>P</i> = 0.01). 3 studies were high quality; all clearly favoured the intervention. 2 studies were moderate quality; 1 clearly favoured the intervention, and 1 clearly favoured the control. No subgroup analyses were possible for this outcome.		
Food choice or intended choice									
0							None of the studies reported this outcome.	NA	Critical
Dietary intake									
1	Observational study	Serious ^c	Not serious	Not serious	Not serious	None	The evidence is very uncertain about the effect of food marketing policies on dietary intake. 1 study (comparing voluntary measure with no measure) reported a clear effect favouring the intervention: self-reported potato chip consumption was significantly lower (1.97 vs 1.91; <i>P</i> = 0.03) post-voluntary measure (4). No subgroup analyses were possible for this outcome.	⊕○○○ Very low	Critical
Food preferences									
0							None of the studies reported this outcome.	NA	Critical
Body weight/BMI/obesity									
0							None of the studies reported this outcome.	NA	Important

No. of studies		Characteristics of studies							Impact	Certainty	Importance
		Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations				
Product requests or intended requests											
0									None of the studies reported this outcome.	NA	Important
Diet-related NCDs (or validated surrogate indicators)											
0									None of the studies reported this outcome.	NA	Important
Dental caries/erosion											
0									None of the studies reported this outcome.	NA	Important
Product changes											
2	Observational studies	Not serious	Serious ^d	Serious ^e	Serious ^f	None			<p>The evidence is very uncertain about the effect of food marketing policies on product change.</p> <p>1 study (comparing voluntary measures vs no measure) reported a clear effect favouring the control: mean sugar content was significantly higher (8.7 g vs 6.6 g; $P < 0.05$) for breakfast cereals from signatory companies (vs non-signatory companies) of the voluntary measure (39).</p> <p>1 study reported no effect, as there was no significant difference ($P = 0.08$) in the average price of children's brand breakfast cereals between jurisdictions with and without a mandatory policy in place (44).</p> <p>No subgroup analyses were possible for this outcome.</p>	⊕○○○ Very low	Important

Characteristics of studies							Impact	Certainty	Importance
No. of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations			
Unintended consequences to wider society (e.g. revenue, jobs)									
3	Observational studies	Not serious	Not serious	Not serious	Not serious	None	<p>The evidence suggests that food marketing policies may result in unintended consequences that are favourable to public health.</p> <p>1 study (comparing mandatory policy with no policy) reported a clear effect favouring the intervention: television HFSS food advertising expenditure significantly decreased (19.4%; $P < 0.01$) post-government policy (42).</p> <p>2 studies (comparing mandatory policy with no policy) reported unclear effects potentially favouring the intervention: the total EDNP food advertising budget decreased from pre- to post-mandatory policy (\$420 000 to \$2 000; Kim 2013 (8)), and there was a 26% reduction in net television food advertising revenue pre- to post-mandatory policy (11).</p> <p>No subgroup analyses were possible for this outcome.</p>	⊕⊕○○ Low	Important

EDNP: energy-dense, nutrient-poor; IRR: incidence rate ratio; NA: not applicable; OR: odds ratio.

^a The direction of effect varied considerably across the included studies: 4 reported a clear effect favouring the intervention, 11 reported an unclear effect potentially favouring the intervention, 7 reported no effect, 11 reported an unclear effect potentially favouring the control and 4 reported a clear effect favouring the control. We therefore judged the evidence for this outcome to have very serious inconsistency and downgraded the certainty of evidence once for inconsistency.

^b The direction of effect varied considerably across the included studies: 3 reported a clear effect favouring the intervention, 2 reported an unclear effect potentially favouring the intervention, 1 reported no effect, 6 reported an unclear effect potentially favouring the control and 6 reported a clear effect favouring the control. We therefore judged the evidence for this outcome to have very serious inconsistency and downgraded the certainty of evidence once for inconsistency.

^c Based on two studies of only moderate quality due to methodological limitations (comparability of samples, outcome assessment).

^d The effect varied across the two studies: 1 reported a clear effect favouring the control, 1 reported no effect.

^e One of two studies used an indirect measure of marketing policy impact (cereal price).

^f Based on just two studies, but one study included data on 17 brands in 6 provinces and the other included 66 cereal brands (so substantial number of data points overall). Therefore deemed 'serious' rather than 'very serious' imprecision.

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Annex 9.

Summary of declarations of interests of contributors to the guideline development process

NUGAG Subgroup on Policy Actions member	Interests declared/identified	Assessment
Nawal Al Hamad	No interests declared	Not applicable
Carukshi Arambepola	No interests declared	Not applicable
Gastón Ares	Declared receiving funding from Conaprole (a Uruguayan dairy company) for a joint research project (2015–2017) with the university for the development of guidelines to reduce the sugar content of dairy products targeted at children	Declarations were not deemed to constitute a risk to the guideline development process given the topic covered by the research (i.e. the development of guidelines to reduce the sugar content of dairy products targeted at children) was not related to the topic of the guideline
Sharon Friel	Declared receiving a research grant from the National Health and Medical Research Council of Australia (NHMRC) to fund the Centre of Research Excellence on Social Determinants of Health Equity (CRE), which ran from 2015 until 2020. The goal of the CRE was to provide evidence on how to navigate the political and policy processes more effectively to operationalize the social determinants of health and health inequity. Also declared receiving a grant from NHMRC for the Australian Prevention Partnership Centre Food Project on systems approaches to healthy and equitable eating	Declarations were not deemed to constitute any conflict of interest for her role in the NUGAG Subgroup on Policy Actions given the topics covered by the funding
Cho-il Kim	No interests declared	Not applicable
Knut-Inge Klepp	Declared that his institution (National Institute of Public Health, Norway) paid for his participation in the first meeting of the NUGAG Subgroup on Policy Actions	Declarations were not deemed to constitute any conflict of interest for his role in the NUGAG Subgroup on Policy Actions given the source of the funding
Joerg Meerpohl	No interests declared	Not applicable
Musonda Mofu	No interests declared	Not applicable
Ladda Mo-suwan	Declared presenting at the Pre-Congress of the 20th Annual meeting of the Pediatric Association in January 2019, on “Nutritional status and dietary intake of young children in Thailand”. Further declared participating in annual meetings of Wyeth and Abbott on infant and young child nutrition in 2016, 2017 and 2018, but no income nor honorariums were paid. The meeting invitations were extended through her university (Prince of Songkla University, Medical Faculty, Thailand) by Wyeth and Abbott, which covered expenses to participate in these annual meetings.	Participation in annual meetings of Wyeth and Abbott on infant and young child nutrition and their coverage of her expenses to participate, which was made to her university, were not deemed to constitute a risk to the guideline development process given the focus of the meetings

NUGAG Subgroup on Policy Actions member	Interests declared/identified	Assessment
Monica Muti	No interests declared	Not applicable
Celeste Naude	No interests declared	Not applicable
Lisa Powell	Declared receiving funds from WHO to travel and speak at a WHO/Pan American Health Organization meeting in 2016; for participation at a meeting on fiscal policies held in Bridgetown, Barbados; for participation at the expert consultation in 2017; and for a country visit to support analysis for the Maldives. Also declared that the University of Illinois, Chicago, where she is employed, received an academic research grant from Bloomberg Philanthropies	Declarations were not deemed to constitute any conflict of interest for her role in the NUGAG Subgroup on Policy Actions given the source of the funding
Mike Rayner	No interests declared	Not applicable
Eva Rehfuess	No interests declared	Not applicable
Lorena Rodríguez Osiac	No interests declared	Not applicable
Franco Sassi	No interests declared	Not applicable
Barbara Schneeman	<p>Declared that:</p> <ul style="list-style-type: none"> • until the end of 2012 (retired in January 2013), she was employed by the United States Food and Drug Administration (FDA), which is interested in scientific input for the development of nutrition recommendations; • as the head of the US delegate to the Codex committees on food labelling and on nutrition and foods for special dietary uses (CCNFSDU), she presented the US positions in these Codex forums (up to 2012); • she was employed by the US Agency for International Development as higher education coordinator from 2015 to 2016, where she worked with the higher education community to increase engagement with USAID; • she was a member of advisory committee at Monsanto discussing the role of agriculture in addressing climate change and improving food and nutrition security (2014 to 2017), and at the McCormick Science Institute reviewing research proposals on spices and herbs (2014 to 2021); • she was a temporary adviser for Ocean Spray on health claim petitions that are submitted to US FDA related to cranberries (2014 to 2015); for General Mills on US labelling requirements for nutrition declarations (2014 to 2016, and 2018); for DSM on Codex Alimentarius processes (2014 to 2015); for Hampton Creek on labelling standards for mayonnaise (2014 to 2015); and for a Washington DC law firm on labelling of genetically modified foods (2014 to 2015); 	<p>Each engagement was assessed in the context of the topic of this guideline. Declared interests – i.e. engagements whether as consultant, presenter, speaker, member of science advisory group with indicated companies – have been on topics related to regulatory issues in the United States of America, and included providing information and advice on FDA’s labelling regulations including on updates to the Nutrition Facts panel, on health claims and on other FDA requirements for labelling purposes to industry. Other engagements have not involved the topic of this guideline and were not considered to pose a risk for the guideline development. Engagement on the science advisory committee for Monsanto was on issues related to agriculture’s role in addressing climate change and food security. Engagement on the advisory committee for the McCormick Science Institute included tasks to review research proposals submitted for funding by the institute. Studies include evaluation of the use of spices and herbs to support consumers adjust, e.g. to recommendation on</p>

NUGAG Subgroup on Policy Actions member	Interests declared/identified	Assessment
	<ul style="list-style-type: none"> • she was a member of the National Academies of Sciences, Engineering, and Medicine (NASEM) and member/chair of the Dietary Guidelines Advisory Committee, involved in reviewing the evidence in developing the national dietary guidelines for the US, <i>Dietary Guidelines for Americans</i>; as such, she <ul style="list-style-type: none"> – was nominated to the Dietary Guidelines Advisory Committee of the USA by representatives from the North American Branch of the International Life Sciences Institute; the American Beverage Association; American Bakers Association, Grain Chain; Grocery Manufacturers Association; USA Dry Pea & Lentil Council, American Pulse Association – received honorariums for presentations on the process to develop the Dietary Guidelines for Americans and policies for food labelling in the US at various scientific meetings organized by PMK Assoc. (IFT & AOCS), McCormick Institute, Fiber Assoc-Japan, and Mushroom Council; • she was a Member Board of Trustees of the International Food Information Council (IFIC), which ensures that IFIC upholds its responsibilities as a 501(c)(3) non-profit (2021); • she was a government liaison for the International Life Science Institute North America, and evaluated research and organized webinars on the microbiome (2018); • she presented a webinar – for which she received no remuneration – to the International Dairy Foods Association on the work of the 2020 Dietary Guideline Advisory Committee (2020) 	<p>reducing intake of added sodium and sugars. The focus of these engagements was not considered to pose a risk for the guideline development. Regarding her membership on the US Dietary Guidelines Advisory Committee, the work was done for a national authority and therefore was not considered a conflict of interest. Regarding her nomination to the US Dietary Guidelines Advisory Committee by industry groups, there is no relationship or affiliation between nominator and nominee.</p> <p>It was therefore considered that these declared interests do not constitute any conflict of interest for the work being undertaken by the NUGAG Subgroup on Policy Actions</p>
Reema Tayyem	No interests declared	Not applicable
Alison Tedstone	No interests declared	Not applicable
Anne Marie Thow	Declared receiving funding from WHO for consultancies to analyse trade, fiscal and nutrition policies, and to support nutrition policies in Pacific Island countries in 2015 and 2017. Further declared receiving funding from the Food and Agriculture Organization of the United Nations and the Asian Development Bank, through her university (University of Sydney) for consulting.	Declarations were not deemed to constitute any conflict of interest for her role in the NUGAG Subgroup on Policy Actions given the source of the funding
Edelweiss Wentzel-Viljoen	Declared receiving funding from the South African Medical Research Council during 2014–2016 for research on salt reduction and hypertension. Further declared being a Board member of the Heart and Stroke Foundation of South Africa.	Declarations were not deemed to constitute any conflict of interest for her role in the NUGAG Subgroup on Policy Actions given the source of and topic covered by the funding
Methods expert	Interests declared	Action taken
Elie Akl	No interests declared	Not applicable
Damian Francis	No interests declared	Not applicable

Systematic review team	Interests declared	Action taken
Kathryn Angus	No interests declared	Not applicable
Angela Boland	No interests declared	Not applicable
Systematic review team	Interests declared	Action taken
Emma Boyland	Declared receiving research support, including grants, collaborations, sponsorships and other funding, from Cancer Research UK and the Wellcome Trust. Further declared that, in the past 3 years, as part of a regulatory, legislative or judicial process, she provided expert opinion or testimony, relating to food marketing policies. Provided public statements and positions to the UK Government Health Select Committee Childhood Obesity Inquiry in 2015 and 2018	Declarations were not deemed to constitute any conflict of interest for her role in the systematic review team given the source of the funding
Juliet Hounsome	No interests declared	Not applicable
Andrew Jones	No interests declared	Not applicable
Michelle Maden	No interests declared	Not applicable
Lauren McGale	Declared being employed as a research assistant on the SWITCH study at the University of Liverpool, which was funded by the American Beverage Association. Declared that this funding was awarded to the university. She was not part of the funding application and was not a named investigator. Her role (which ended in 2020) involved recruiting participants and collecting data.	During Lauren McGale's employment as a research assistant with the University of Liverpool on a study (SWITCH trial) funded by the American Beverage Association (ABA), she recruited participants and collected data (running probe days). Lauren McGale was not part of the funding application, did not receive an honorarium from ABA and is not a named investigator. As such her involvement in the SWITCH trial was not considered a risk to the guideline development process.

External peer reviewers	Interests declared	Action taken
Huda Mustafa Al Hourani	No interests declared	Not applicable
Gershim Asiki	Declared having received a research grant from the International Development Research Centre (IDRC)–Canada in 2019 to conduct research on the food environment and benchmarking policies for three east African countries (Kenya, Tanzania and Uganda); and on mapping food promotion to children in schools, in food retail outlets and on TV/radio in Kenya. Declared receiving additional funds from IDRC for development of four food environment policies in Kenya, working closely with the Kenyan Ministry of Health.	Declarations were not deemed to constitute any conflict of interest for his role as an external peer reviewer given the source of funding and topics covered
Alejandro Calvillo	No interests declared	Not applicable
Suparna Ghosh-Jerath	No interests declared	Not applicable
Maria João Gregório	No interests declared	Not applicable
Fiona Sing	No interests declared	Not applicable
Boyd Swinburn	No interests declared	Not applicable

Declared interests were discussed with the Office of Compliance, Risk Management and Ethics (CRE)/WHO.

Annex 10.

Key characteristics of policies evaluated by studies included in the systematic review on the effectiveness of policies to restrict food marketing to which children are exposed

The following table provides the key characteristics of the policies evaluated by studies included in the systematic review on policies to restrict food marketing to which children are exposed (1). Some of the policies and/or their characteristics may no longer be current.

Policy name	Jurisdiction (date implemented)	Policy type	Definition of child in policy	Targeted products		Exposure		Power
				Target foods and beverages	Criteria/model used to define	Restricted communications, channels and settings	How are child-directed communications, media, advertisements and settings defined?	
Australian Children's Television Standards	Australia (1984)	Mandatory	6-13 years	All foods and drinks	Not reported	TV	Placement: programmes and advertisements shown during designated "C" programmes (those specifically produced for children 6-13 years of age)	Regulates (does not prohibit) use of promotions, popular characters and premium offers promoted to children in advertisements for food: "If a premium is offered, any reference to the premium must be incidental to the main product or service advertised". Premiums are defined as anything offered with or without additional cost that is intended to induce the purchase of an advertised product or service.

Policy name	Jurisdiction (date implemented)	Policy type	Definition of child in policy	Targeted products		Exposure		Power
				Target foods and beverages	Criteria/model used to define	Restricted communications, channels and settings	How are child-directed communications, media, advertisements and settings defined?	
Australian Food and Grocery Council's Australian Quick Service Restaurant Industry Initiative	Australia (August 2009)	Voluntary	<14 years	Those not representing healthier choices as per established scientific or Australian Government standards	Defined set of nutrition criteria for assessing children's meals	TV, radio, newspaper, magazines, outdoor billboards and posters, emails, interactive games, cinema, internet sites	Medium that is directed primarily to children and/or where children represent 35% or more of the audience of the medium. In relation to television, media directed primarily to children include all "C" (children's) and "P" (preschool children's) rated programmes and other rated programmes that are directed primarily to children through their themes, visuals and language.	Not reported
Canadian Children's Food and Beverage Advertising Initiative	Canada (introduced 2007, fully implemented by 2008)	Voluntary	<12 years	Non- "healthier dietary choices"	Uniform nutrition criteria: company-specific nutrition standards	TV, radio, print, internet	Audience and placement: company-owned websites/microsites primarily directed to children <12 years; video/computer games rated "Early Childhood (EC)"; DVDs of movies rated "G" whose primary content is primarily directed to children <12 years, and other DVDs whose content is primarily directed to children <12 years; mobile media (phones, tablets, personal digital devices) where advertising on those media is primarily directed to children <12 years	Licensed characters, celebrities, movie tie-ins, use of products in interactive games, product placement

Policy name	Jurisdiction (date implemented)	Policy type	Definition of child in policy	Targeted products		Exposure		Power
				Target foods and beverages	Criteria/model used to define	Restricted communications, channels and settings	How are child-directed communications, media, advertisements and settings defined?	
Chile Food Labelling and Advertising Regulation ("Super 8 Law")	Chile (2016, updated 2018)	Mandatory	<14 years	"High in" products	Uniform nutrition criteria: thresholds set by the Chilean Ministry of Health	TV, websites, schools, packaging	Time, placement, audience, and setting: all TV broadcast from 6:00 hours to 22:00 hours. Outside these hours, TV broadcast on devoted children's channels, during programmes targeting children, or when child audience is >20% (except during sports, cultural, artistic or charity events, if certain criteria are met). Also included are websites targeting children or those with child audience of >20%; and preschools, primary schools and secondary schools.	Prohibits, in any marketing for regulated products, use of the following: celebrities, characters, cartoons (including brand equity); toys; stickers; animations; children's music; people/animals that capture children's interest; fantastic statements about product or its effects; situations representing children's daily life; children's expressions or language; interactive contests, games or applications; or "hooks" unrelated to the product itself
EU Pledge	European Union (EU; introduced 2007, uniform nutrition criteria adopted 2014)	Voluntary	<12 years	Those primarily directed to children under 12 that do not meet specific nutrition criteria	Company-specific nutrition standards	TV, radio, cinema, print, outdoor marketing, internet, mobile apps, social networking websites, influencer marketing, interactive games, schools	Audience, placement and setting: no advertising to media audiences with >35% of children <12 years (from 2012; previously 50%), except for products that meet nutrition criteria (company-specific). No communication related to products in primary schools, except where specifically requested by, or agreed with, the school administration for educational purposes. Since 2012, internet advertising has been extended to include company-owned websites, in addition to third-party advertising.	Prohibits advertising of products that do not meet common nutrition criteria to children under 12 years old

Policy name	Jurisdiction (date implemented)	Policy type	Definition of child in policy	Targeted products		Exposure		Power
				Target foods and beverages	Criteria/model used to define	Restricted communications, channels and settings	How are child-directed communications, media, advertisements and settings defined?	
Mexican self-regulation (Código de Autorregulación de Publicidad de Alimentos y Bebidas No Alcohólicas dirigida al Público Infantil)	Mexico (2009)	Voluntary	<12 years	No specific targets but, to be permitted, advertisements must “promote healthy life-style habits, based on a proper diet and active lifestyle”	Not reported	TV, radio	Audience, placement and setting: applies to schedules and programmes predominantly aimed at children (without further specification). Defined as child directed if the product or packaging and/or the advertisement (through themes related to fantasy, mystery or adventure, or use of colourful characters and gifts) aims to appeal to children, and/or when an advertisement is broadcast on children’s programming, or when a child audience reaches a pre-established minimum level.	Does not prohibit use of persuasive techniques
Quebec Consumer Protection Act	Quebec, Canada (1980)	Mandatory	<13 years	Those designed for primary appeal to children	Any product consumed primarily by children	All commercial advertising directed at children	Audience: child directed when children make up >15% of audience	Use of characters or themes designed to elicit the interest of children
San Francisco Healthy Food Incentives Ordinance	San Francisco, USA (December 2011)	Mandatory	Not reported	Those not meeting nutrition criteria	Uniform nutrition criteria	Fast food restaurants in San Francisco	Settings: applies to all fast food restaurants	Free toys or incentives (games, trading cards or other consumer products)

Policy name	Jurisdiction (date implemented)	Policy type	Definition of child in policy	Targeted products		Exposure		Power
				Target foods and beverages	Criteria/model used to define	Restricted communications, channels and settings	How are child-directed communications, media, advertisements and settings defined?	
Special Act on Safety Management of Children's Dietary Life	Republic of Korea (September 2010)	Mandatory	4–18 years	Food products favoured by children as snacks or meal substitutes that do not satisfy the nutrition criteria	Uniform nutrition criteria: determined by Korean Food and Drug Administration	TV	Not reported	Not reported
UK content and scheduling (Ofcom) restrictions	UK (April 2007 – January 2009)	Mandatory	<16 years	Those high in fats, sugar or salt	UK Food Standards Agency Nutrient Profiling Model	TV	Placement and audience: broadcasting during children's programmes or when proportion of viewers aged 4–15 is 20% higher than in the general population	Promotional offers, nutritional and health claims, licensed characters, celebrities; techniques regulated by UK Code of Broadcast Advertising that are calculated to appeal to children aged 4–16

Annex 10 references

1. Boyland E, McGale L, Maden M, Hounscome J, Boland A, Jones A. Systematic review of the effect of policies to restrict the marketing of foods and non-alcoholic beverages to which children are exposed. *Obes Rev.* 2022;23:e13447. doi: 10.1111/obr.13447.

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