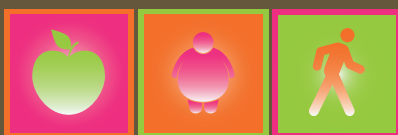


Marketing of foods high in fat, salt and sugar to children: update 2012–2013



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ABSTRACT

This publication provides information on the marketing of foods and beverages to children and the changes that have occurred in the last decade. It examines trends in marketing methods and media platforms, reviews some of the recent policy action by WHO European Member States and provides a summary of recent scientific evidence related to the issue.

Keywords

ADVERTISING
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MARKETING – legislation
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Abbreviations

CIS	Commonwealth of Independent States
EU	European Union
HFSS	high in fat, sugar or salt
TV	television

Foreword

The marketing of food and beverage products high in fat, sugar and salt to children is recognized in Europe as an important element in the etiology of child obesity and in the development of diet-related noncommunicable diseases. Overweight is one of the biggest public health challenges of the 21st century: all countries are affected to varying extents, particularly in the lower socioeconomic groups.

The picture is not improving in most countries of the WHO European Region. The figures for children from the WHO Childhood Obesity Surveillance Initiative show that, on average, one child in every three aged 6–9 years is overweight or obese.

The WHO Regional Office for Europe has been working in recent years with Member States to devise policy options that could protect children better from the negative impact of marketing on dietary behaviour. This process has been developed by working together in the implementation of the set of recommendations endorsed at the Sixty-third World Health Assembly in 2010 on the marketing of food and non-alcoholic beverages to children, as well as within the context of the WHO European Network on reducing food marketing pressure on children.

The bases of policies to address unacceptable marketing practices to children depend on appropriate intersectoral action and dialogue, sound governance and accountability mechanisms, as well as a focus on equity and a child's rights approach. These are all elements at the heart of the new health policy framework for the WHO European Region, Health 2020, which supports action across government and society for health.

I strongly believe that the trends in childhood obesity can be reversed. This report, although a small step in providing evidence on the trends and policy processes in tackling one of the determinants of childhood obesity, illustrates the enormous progress that has been made in recent years. At the same time, it highlights how collaboration among Member States can trigger decisive action.

To be effective, the initiative to reduce the exposure of children to the marketing of foods and non-alcoholic beverages should be part of a broader package that needs to include: scaling up and adopting the WHO Childhood Obesity Surveillance Initiative; introducing appropriate governance mechanisms with an intersectoral perspective to streamline action and implement a best buys approach to tackling childhood obesity; and ensuring that childhood obesity strategies and noncommunicable disease policies are connected and interact appropriately with strategies to reduce inequality.

Zsuzsanna Jakab
WHO Regional Director for Europe

Introduction

The promotion of potentially unhealthy food and beverage products is now widely recognized in Europe as a significant risk factor for child obesity and for the development of diet-related noncommunicable diseases. Reviews conducted for WHO (1–3), for European parliamentarians (4,5) and for national agencies in Europe and the United States of America (6,7) have all concluded that, despite substantial gaps in the evidence, advertising and the promotional marketing of foods and beverages have enough effect on children's diets to merit action.

As a result, a series of policy responses have emerged in the last decade. The WHO 2004 Global Strategy on Diet, Physical Activity and Health (8) stated that food advertising messages that encourage unhealthy dietary practices should be discouraged, and that governments "should work with consumer groups and the private sector (including advertising) to develop appropriate multisectoral approaches to deal with the marketing of food to children, and to deal with such issues as sponsorship, promotion and advertising" (paragraph 40(3)).

In May 2006, WHO held a stakeholder forum and expert technical meeting on the issue in Lysbu, Norway. The resulting report urged Member States to take "bold, innovative action at both national and global levels" to reduce the promotion of energy-dense, micronutrient-poor food and beverages to children (9). It noted that advertising to children included: (i) promotion that is deliberately targeted at children and scheduled to reach them, and (ii) promotion targeting other groups but to which children are widely exposed.

Following this report, the European Charter on Counteracting Obesity was signed at a pan-European Ministerial Conference in Istanbul later in 2006 (10). The Charter called for "the adoption of regulations to substantially reduce the extent and impact of commercial promotion of energy-dense foods and beverages, particularly to children, with the development of international approaches, such as a code on marketing to children in this area" (paragraph 2.4.6).

The European Commission's 2007 White Paper *A strategy for Europe on nutrition, overweight and obesity-related health issues* (11) noted the need for action in this area and stated its support for voluntary initiatives, while acknowledging that such initiatives would need to be reviewed for their effectiveness. The Commission has also hosted a forum for European-level organizations called the European Platform on Diet, Physical Activity and Health. Membership of this forum ranges from representatives of the food industry to those from nongovernmental consumer protection organizations who are willing to commit themselves to tackling trends in diet and physical activity, including commitments regarding the marketing of foods and beverages.

In January 2008, 15 WHO European Member States formed the WHO European Network on reducing food marketing pressure on children, chaired by the Norwegian Directorate of Health, and in 2009 this network prepared for publication the *Code on marketing food and non-alcoholic beverages to children* (12).

Prior to this, the Sixtieth World Health Assembly, in resolution WHA60.23 on the prevention and control of noncommunicable diseases: implementation of the global strategy, requested the Director-General of WHO to "promote responsible marketing including the development of a set of recommendations on the marketing of foods and non-alcoholic beverages to children in order to reduce the impact of foods high in saturated fats, trans-fatty acids, free sugars or salt in dialogue with all relevant stakeholders, including private sector parties, while ensuring avoidance of potential conflict of interest". After an extensive consultation process, a set of recommendations was endorsed at the Sixty-third World Health Assembly in 2010 with the adoption of resolution WHA63.14 on the marketing of food and non-alcoholic beverages to children (13). This resolution also requested the Director-General to provide technical support to Member States in implementing the set of recommendations. As a result, a framework for implementing the set of recommendations on the marketing of food and non-alcoholic beverages to children for Member States was published in early 2012 (14).

Nongovernmental organizations have advocated reducing the promotion of unhealthy foods to children for several decades. Several significant developments have occurred in the last few years. A draft code of marketing was proposed jointly by the International Obesity Task Force and Consumers International in 2007 (15), building on the Sydney Principles, a declaration launched by the Task Force in 2006 (16). The International Association for the Study of Obesity maintains a summary of recent scientific publications on this topic (17) and Consumers International has developed a set of guidelines on monitoring marketing activity (18). Both these and other nongovernmental health and consumers' organizations continue to publish reports on the methods and impact of marketing of foods and beverages to children (19).

The food industry has recognized the need to respond, and in 2007 several companies came together to offer voluntary pledges to limit their marketing activities in several regions, including the European Union (EU) (20). These moves have been welcomed for showing willingness to act and as a method for addressing cross-border advertising concerns. The details have, however, been criticized by civil society organizations on several counts, including the lack of an enforcement structure and the low threshold for allowing advertising: the voluntary measures are applied to a limited number of food products defined by the companies themselves and a restricted set of media (primarily television and some internet activities) (21).

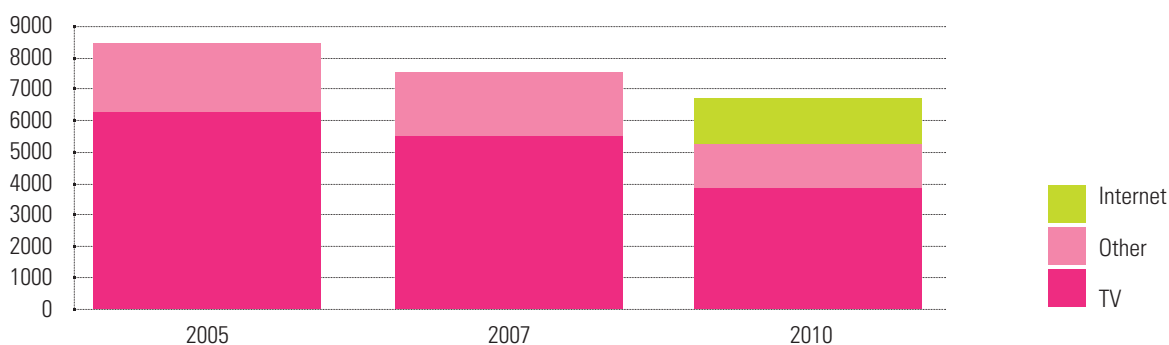
In the last few years, scientific research has strengthened the evidence base demonstrating links between the exposure of children to marketing messages and consequential changes in their dietary behaviour, thus reinforcing the case for intervention. At the same time the technology for advertising has changed, with new and rapidly expanding forms of media (digital television, online marketing, mobile and smartphones and social networking) becoming available to larger numbers of children and offering low-cost, effective means of reaching them directly for marketing purposes.

This briefing document describes the changing nature of marketing methods and recent policy approaches to controlling the marketing of food and beverages to children, and offers a summary of recent research papers on the evidence linking advertising and marketing to children’s dietary behaviour.

Developments in marketing opportunities

Television (TV) remains the most frequently used medium for advertising all types of goods and service, but internet and digital advertising has increased rapidly during the last decade and is expected to be a significant medium in the coming years. Although data for countries in much of the European Region are hard to obtain, estimates for advertising expenditure in western Europe indicate a decline in spending on TV advertising and a significant rise in spending on internet and other non-traditional digital advertising (Fig. 1). Internet spending is expected to rise from 20% of total advertising expenditure to 30% over the period 2010–2015, by which time it is predicted to be worth some US\$ 38 billion out of a total of US\$ 126 billion spent on all advertising in western Europe (22).

Fig. 1. Changing spending patterns in food and non-alcoholic drink advertising in western Europe
€ (million)



Note. Data are for nine leading markets: Belgium, France, Germany, Italy, the Netherlands, Spain, Sweden, Switzerland and the United Kingdom. “Other” comprises print, radio, cinema and outdoor media.
Source: European Association of Communications Agencies (23).

Reduced spending on advertising does not, however, mean reduced quantity of advertising. The rise in the number of TV channels and expanding new media has reduced average costs and increased opportunities significantly. For example, in the United Kingdom the number of TV impacts (one person seeing one advertisement) rose by 21% from 790 billion impacts in 2006 to 956 billion impacts in 2010 (24), despite a reported average fall of nearly 60% in expenditure on TV advertising across major categories (23).

In the food and drink sector, the leading categories of food being advertised are soft drinks, sweetened breakfast cereals, biscuits, confectionery, snack foods, ready meals and fast food/quick service outlets. The majority of the food and beverage products featured are high in fat, sugar or salt (HFSS). Surveys in 2007 found that over 50% of food advertisements on children’s TV were for HFSS foods in Spain, Sweden and the United Kingdom, over 60% in Greece and Italy, over 80% in Germany (25) and over 90% in Bulgaria (26).

TV remains a dominant medium for the promotional marketing of foods and beverages but, as indicated in Box 1, it is only one of many different media through which advertisers are now able to promote products, build brand awareness and generate consumer loyalty.

Box 1. Emerging techniques used to market food and beverages to children

Placement of online advertising

- On search engines
- On social networking sites
- On news sites, music sites and blogs
- Around or in TV-on-demand
- Around or in films and media clips viewed online
- Around or in online and downloadable games, music and other media

Product placement and branding

- Product placement in scheduled TV and radio programmes, films, computer games, downloadable “apps” (downloadable software applications)
- Branded books such as counting books for pre-schoolers
- Branded toys such as the fast food store as a playhouse
- Branded computer games
- Interactive company-owned web sites, for example with puzzles and games
- Branding on sports teams and advertising at sports and cultural events

Viral marketing

Word-of-mouth and personal recommendation by consumers, sometimes in return for payment or reward, and increasingly encouraged in social networking sites (27)

Sponsorship

- Sponsorship of TV and radio programmes, music videos
- Celebrity product endorsement
- Sponsorship of community and school events and contests
- Corporate gifts of educational materials and equipment
- Corporate support of health campaigns, sports clubs, school meals

Direct marketing

- Promotional e-mails
- Promotional sales by telephone, text messaging to mobile phones
- Promotion and sampling schemes in schools

“Advergaming”

Branding and advertising embedded in video games and interactive fantasy worlds, available online or for downloading (the users may provide their contact details to marketers in return for multiplayer interactive gaming and opportunities for rewards.)

Point of sale and product promotion

- Packaging vouchers with links to discounts on videos, films, music
- Packaging codes with links to online games, social networking sites or downloadable apps
- Vending machine codes with links to online immediate discounts

Integrated marketing

Linking film, toy and food products and new media, such as a breakfast cereal with on-pack promotion of a brand-promoting game played on a web site, with matching Facebook page and Twitter messaging (the game can be played interactively with other people worldwide and is downloadable as an app to play on a smartphone.)

Interactive and user-generated marketing

Includes two-way marketing and market-shaping activities (for example, TV advertisements invite viewers to vote for different flavours of a brand which then get produced and marketed; or the company launches a competition to create a video commercial which individuals put on YouTube for viral distribution.)

TV

In 2009, an estimated 97% of households in west and central Europe and the Commonwealth of Independent States (CIS) had one or more TV sets, higher than any other WHO region (28). A high level of TV ownership has existed for more than a decade, but recent developments in satellite, cable and digital communications have greatly increased the number of channels available, thereby increasing the potential quantity of advertising while reducing the costs (Table 1).

Table 1. Number of TV channels available in selected European countries, 2006 and 2009

Country	2006	2009	Change 2006–2009 (%)
Austria	22	142	+ 545
Belgium	51	151	+ 196
Czech Republic	18	177	+ 883
Denmark	17	199	+ 1071
Finland	13	70	+ 438
France	138	476	+ 245
Germany	147	373	+ 154
Greece	36	190	+ 428
Hungary	38	538	+ 1316
Iceland	8	17	+ 113
Ireland	7	17	+ 143
Italy	205	1048	+ 411
Luxembourg	8	42	+ 425
Netherlands	58	627	+ 981
Norway	14	42	+ 200
Poland	40	269	+ 573
Portugal	22	62	+ 182
Slovakia	4	105	+ 2525
Slovenia	95	72	– 24
Spain	52	1185	+ 2179
Sweden	11	234	+ 2027
Switzerland	109	57	– 48
Turkey	387	332	– 14
United Kingdom	–	1100	–

Source: Organisation for Economic Co-operation and Development (29).

A large majority of children and adolescents in Europe watch TV on average for more than two hours each day, according to self-reported data from the Health Behaviour in School-Aged Children survey of 2012 (Fig. 2) (30). In the United Kingdom, which has a number of public service non-commercial channels and a rapidly increasing number of commercial channels, data over the period 2003–2009 indicate a rise in viewing of the commercial channels by children (aged 4–15 years) from 66% of viewing time to 75%, indicating a significant increase in exposure to commercial messages (31).

The time spent watching TV is only one component of children's screen-watching time and research suggests that total screen-time exposure may be underestimated across all types of device (32). Although TV remains a dominant focus for food marketing, its importance has been declining and innovations in food marketing are now seen in other types of advertising (33).

Fig. 2. Proportion (%) of children watching TV for more than two hours per day in selected countries, 2005

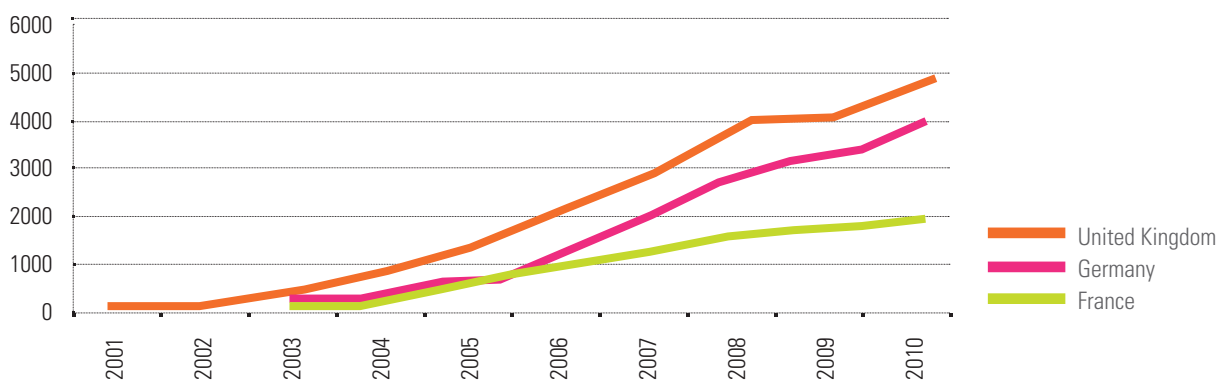


Note. Self-reported data, children aged 11–15 years.
 Source: WHO Regional Office for Europe (30).

New media

Trends in online advertising expenditure for all goods and services in the three leading European markets (France, Germany, the United Kingdom) have shown a dramatic increase in the period 2000–2010 from a total of less than €0.5 billion to over €10 billion (Fig. 3). In the United Kingdom, online advertising expenditure was reported to have exceeded expenditure on TV advertising for the first time in early 2009 (34).

Fig. 3. Online advertising expenditure in three leading markets (all products and services), 2001–2010, € (million)

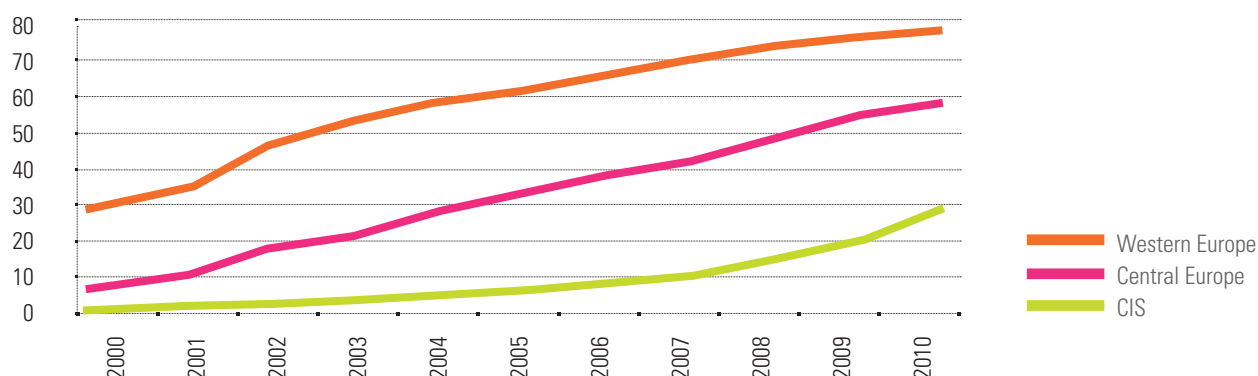


Source: data from DoubleClick (35), Internet Advertising Bureau (36–39).

The rise in advertising follows an increase in access (especially home access) to online services. The last decade has seen a rapid rise in households connected to the internet across the European Region, with populations in western and central Europe among the most connected in the world (Fig. 4).

Data on children’s access to the internet are available for some countries. Figures from the United Kingdom in 2011 show that 65% of children aged 5–7 years were accessing the internet through home computers, rising to 85% of children aged 8–11 years (41). These figures indicate that children’s access to the internet in the United Kingdom has risen some 30% during the four-year period 2007–2011.

Fig. 4. Percentage of individuals in the national population using the internet, 2000–2010



Note. Unweighted averages across available countries in each region.
Source: International Telecommunications Union (40).

To reach children and teenagers, companies design their marketing campaigns to involve a variety of media and devices. Interactive media allow companies to gather information and refine their marketing approach to target the profile of their material to suit the individual viewer. Social networking sites such as Facebook and messaging services such as Twitter are popular with children and young people and, therefore, with advertisers. Social media marketing can increase advertisement recall, awareness of the product or brand and intent to purchase (42). Global expenditure on advertising on social networking sites reached an estimated US\$ 5.5 billion in 2011 and is predicted to reach US\$ 10 billion annually by 2013 (43). Online advertising is forecast to take 20% of total media expenditure globally by 2014, and already accounts for more than 25% of advertising expenditure in Denmark, Norway, Sweden and the United Kingdom (44). Combined exposure to TV and internet social networking is also increasing: over 50% of X Factor viewers in the United Kingdom reportedly used the Facebook site at the same time as they were watching the TV show (45).

Companies also develop their own web sites which increase brand awareness and consumer loyalty but are not usually defined as advertising and may not be included in estimates of advertising expenditure. Food companies' home pages give children an opportunity to engage with the brand by, for example, becoming a fan. Further involvement comes when the companies' web sites provide social contexts that display the names of a user's friends who are already fans of the brand (42). With 56 000 new fans joining it daily, one such fan page was rated as number 11 in the world in mid-2011, with a total of nearly 32 million fans (46). It was the only food product with such a high ranking; the next-placed product attracted 23 million fans, having gained 13 million in a year (47).

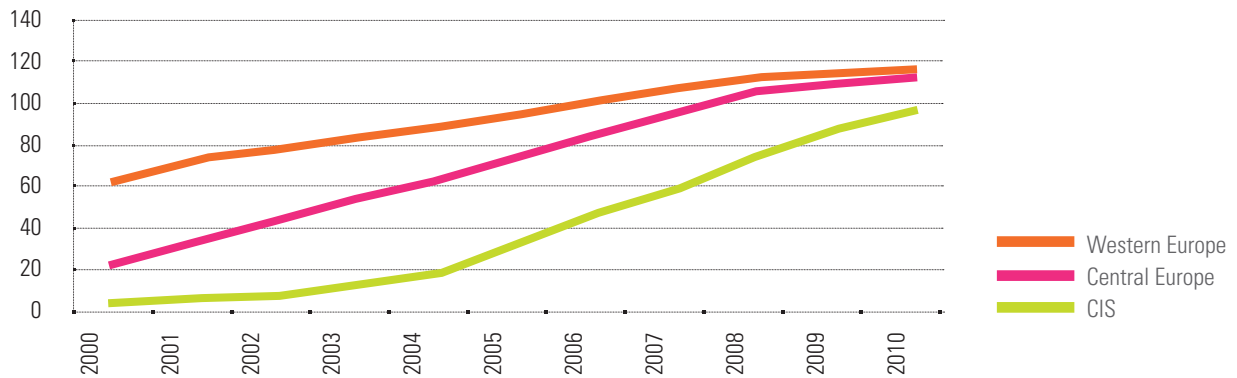
Besides passive advertising, food companies have become part of the conversation, using digital marketing to create, test and adjust their marketing messages in real time, with young people learning about new products, evaluating them and providing feedback to the companies (48). A further valuable and low-cost marketing method is to encourage young people to download or record a commercial and then distribute it to their friends or place it on a social media site for free access. This is termed user-generated marketing, and its distribution is termed viral as it relies on users to spread the messages informally. In so far as a company has no involvement in the spread of the commercial message, the company can deny responsibility over who is exposed and what effect it has.

An additional tool for marketers is online behavioural tracking, by which the company monitors individuals' personal interests and then advertises selected products that might interest them. By analysing people's social network and social groups, the companies can direct selected messages to individual children and to linked groups of children and their social community (48). In the United Kingdom, the average teenager has over 450 Facebook friends and the average young adult has over 1000 friends (49).

Mobile marketing

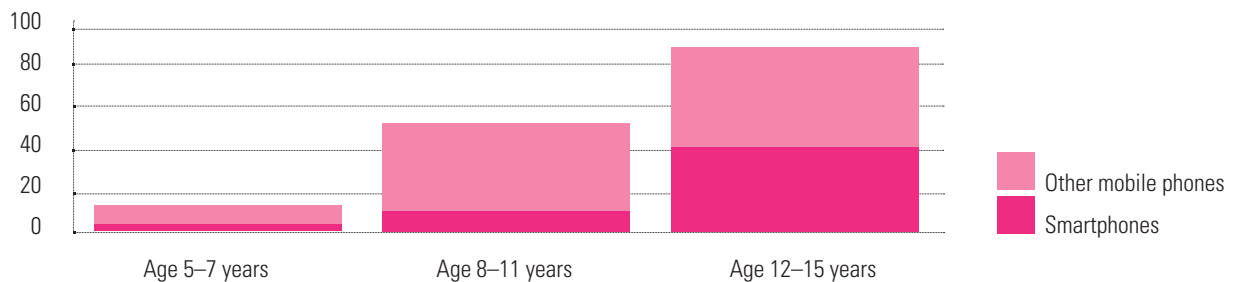
The use of mobile (cell) phones has become widespread in many European countries (Fig. 5). Data from the United Kingdom show that use of a smartphone (mobile phone with internet access) is common among relatively young age groups: among children aged 8–11 years, 1 in 8 owns a smartphone, and among children aged 5–7 years a remarkable 1 in 50 owns a smartphone (41) (Fig. 6).

Fig. 5. Number of mobile subscriptions per 100 people, 2000–2010



Note. Unweighted averages across available countries in each region.
Source: International Telecommunications Union (50).

Fig. 6. Percentage of children owning mobile phones, by age group, United Kingdom, 2011



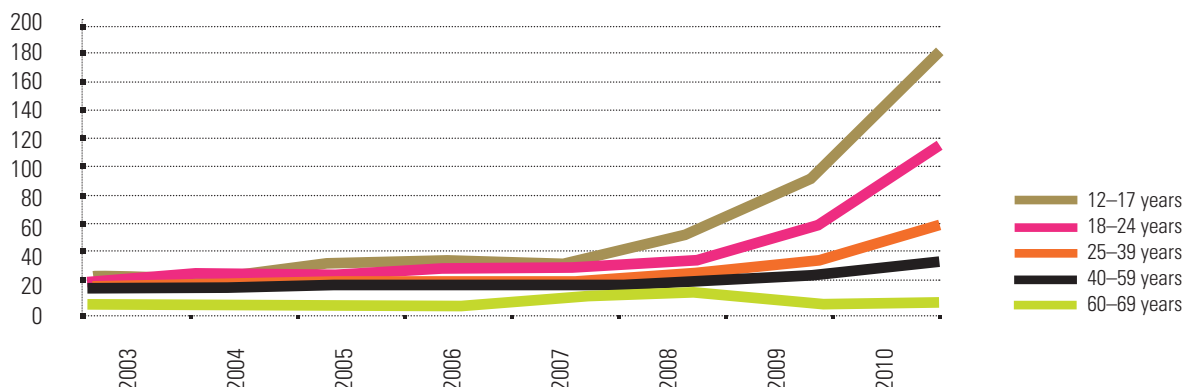
Source: Ofcom (41).

With mobile marketing, food companies can invest very little money in their marketing and advertising campaigns and, in return, get access to a large number of customers that are available most of the time as they carry their mobile phones with them. Young people are the most active users of text messaging: data from France show a year-on-year doubling of the number of messages sent weekly by young people aged 12–17 years to 182 per week in 2010 (Fig. 7) (51). (Data for younger children were not published.) The companies collect mobile phone numbers from their interactive web sites, competitions, voucher redemptions and the purchase of specialist lists.

As with e-mail marketing, messages can be customized to known users' interests and the responses tracked. As reported by comScore, in September 2010, almost half of European mobile users received advertising via text messages (52). This communication can be interactive, as customers can communicate with food companies. For example, one company has introduced new cashless vending machines to encourage mobile phone payment: when customers send a message to the company which includes a vending machine code, they receive a discount that comes directly to the vending machine as they make the purchase (53). Simultaneously, the company gains a phone number linked to a known product purchaser.

Smartphones have created a new opportunity for marketing through apps. Mobile apps allow food companies to communicate information about products and help consumers to find a company's products in shops, order their products for home delivery or send discounts and coupons (54).

Fig. 7. Number of text messages sent weekly, by age group, France, 2003–2010



Source: Organisation for Economic Co-operation and Development (51).

“Advergames”

A recent development for food companies is to promote their brand using “advergames” (digital games or fantasy worlds with inbuilt advertising or branding). Most major food companies have developed game-playing and fantasy video sites for young children. In the United States, one large company’s advergames attracted over four million unique child visitors and a further three and a half million unique teenage visitors in 2009 (55). Games include prompts for users to order home-delivery food while playing the game. Some sites offer videos of advertisements which, in countries such as Norway, Sweden or the United Kingdom, might be considered to be breaking the local regulations if the same advertisement were to be shown during children’s TV.

Sites that offer social gaming (multi-player online games) are expected to grow rapidly. Although the games may or may not have embedded advertising, the sites can include banner advertising and other marketing messages showing the brand. Figures from the United States indicate that advertisers spent an estimated US\$ 192 million advertising on social game sites in 2011, a 60% increase over 2010 and predicted to rise by a further 40% in 2012 (56).

Schools

Food and beverage companies continue to promote their brands in schools and the school environment. The companies place their brands or logos on educational material, prizes and awards, equipment, clothing and vending machine surfaces. Although most Member States have restrictions on the advertising of alcohol and tobacco on school premises, most of them have few or no restrictions on the promotion of brands of food and beverage (see section on regulatory and self-regulatory action below).

Figures for in-school marketing in Europe are not accessible. In the United States in 2008, food companies spent US\$ 186 million on in-school advertising, 90% of which was spent on soft drink promotion (57). There are also moves in the United States towards greater commercial exposure through advertising on dedicated TV channels for schools and TV and audio commercials on school buses (58). Marketing also occurs in out-of-school activities such as children’s ski-schools and swimming events.

Sponsorships

In 2010, global spending on all kinds of sport and entertainment sponsorship was estimated at US\$ 46.3 billion, with growth of over 5% expected the following year (59).

In Europe, estimates by the European Sponsorship Association (60) suggest that the value of commercial sponsorship in 2010 exceeded €22.33 billion, of which sports sponsorship was worth some €16.13 billion. This includes sponsorship by alcohol, clothing and other sectors as well as the food and beverage sector. Sponsorship by food companies is not separately available. Estimates suggest that the contributions of two large companies to the London 2012 Olympics exceeded US\$ 200 million, and a third a further US\$ 40 million, for which the companies obtained exclusive sales rights and advertising opportunities (61,62).

Food companies’ sponsorship of televised sporting events does not specifically target children. although many children, including those aged under 12 years, watch these events. Sponsorship of local and community

events can target children, such as a soccer youth championship in Portugal and Spain open to children aged 14–15 years (63) and sponsorship of young children's swimming awards in the United Kingdom through the Amateur Swimming Association (64).

The role of parents

It is commonly accepted that responsibility for a child's health and well-being depends largely on the actions and responsibility of the parents, and how the parents exert control over their children's behaviour. Parental control may be expressed through parents' willingness to indulge children's requests and their day-to-day actions, such as whether they add confectionery to a school lunch box or offer a fast food meal as rewards for achievements. Parents may also exert some control over their children's patterns of TV watching, and may help to educate their children on the nature and meaning of advertising.

However, parents' dialogue with their children over unhealthy food advertising can be undermined by the way parent-child relationships are portrayed in those advertisements, and by advertisers reaching children through media which are not easily controlled by parents. Some advertisements show parents serving unhealthy food while implying that this behaviour shows care and love for the child (65,66). Parental controls may not extend to TV viewing and computer use at day care centres, kindergartens and in schools. In poorly regulated environments, such as home-based day care, there may be high use of TV as a pacifier: in the United States, children in home-based child care settings were exposed to 1.84 more hours of TV per day compared to children in kindergartens (67).

Regulatory and self-regulatory action

Rights and risks

The protection of children from exploitation has a long legislative history. Marketing to children has been described as inherently exploitative because children may be incapable of discerning its commercial intent but are susceptible to its influence (16). A rights-based approach builds on the United Nations Convention on the Rights of the Child (68), the right to adequate food (69) and freedom from obesity (70). The rights-based approach is based on the concept of a civilized society's responsibility to protect its citizens, especially the vulnerable.

An alternative is the risk-based (or risk-benefit-based) approach where an attempt is made to weigh up the multiple likelihoods of harm and benefit in terms of outcomes, to minimize the risk of harm and maximize the benefit. It recognizes conflicting interests and the costs to different stakeholders, and the need for proportionate action to balance commercial and economic costs against health gains. A rights-based approach is intrinsically more favourable to the protection of children, whereas a risk-based approach offers some protection to the free working of markets and commerce.

In WHO's 2010 recommendations on marketing to children (13), the approach is primarily one of reducing health risks while not constraining responsible marketing. Specifically, the document calls on Member States to adopt policies that reduce the extent of exposure to, and the power of, marketing messages which promote the consumption of foods high in saturated fats, trans-fatty acids, free sugars or salt in order to reduce the risk of noncommunicable diseases.

In practice, rights-based policies have already been introduced in several countries to protect children from commercial marketing messages generally, including Canada (the province of Quebec), Norway and Sweden. Risk-based policies have been introduced in France, the United Kingdom and several other countries (71). A rights-based approach is more comprehensive in nature and can be more easily formulated. A risk-based approach needs to specify more precisely which marketing messages are and are not allowable, based on an evaluation of the likelihood of harm (Box 2).

Latest developments in regulatory and self-regulatory action

An EU-funded research project conducted in 2008–2010, PolMark, investigated the development of regulatory activities to control the marketing of food and beverages to children in Europe, and noted that the number of countries with national policy papers stating the need to address the issue had increased considerably in five years, with most policy documents stating a preference for self-regulatory approaches (82).

In 2010, the WHO Regional Office for Europe published a review of policy action taken by EU member states in this area (83). A summary of the country information is given below, followed by a summary of recent action taken by self-regulatory bodies.

Box 2. Specifying the exposure risks

Which products?

Which food and beverage products should be promoted to children and which should not? Risk reduction means promoting only those food and beverage products that conform to national dietary guidelines and international recommendations such as the WHO Global Strategy on Diet, Physical Activity and Health (72). Several models exist for defining food and beverage products that should not be promoted, including several proposals from commercial sources and three from government-related agencies: (i) the United Kingdom Ofcom model (73), (ii) the proposals of the United States Inter-Agency Working Group (74) and (iii) proposals from the Norwegian government (under consultation in 2012) (75). A range of schemes have also been proposed by food and beverage companies which have been implemented on a voluntary basis (76). WHO is conducting a process of developing nutritional profiling for several purposes, including for marketing regulations and food reformulation.

Which children?

What age group should be protected? It can be suggested that marketing messages which can potentially undermine health should only be directed at those persons who have reached an age where they are legally considered to be competent to protect their own welfare, and that for stronger protection, marketing messages should be directed only at people significantly older than the age of competence, so as to avoid appealing to younger age groups. In practice, the age of legal competence is determined by national legislation. For food and beverages, the United Kingdom Ofcom regulations are applied during TV programmes "... which appeal to children under age 16 years" (77). In Sweden, Section 7 of the Radio and Television Act states that commercial advertising in TV programmes, teletext and on-demand TV must not be designed to attract the attention of children aged under 12 years (78).

On the internet, a ban on targeting specific age groups may be theoretically plausible (as is the case with restrictions placed by Facebook on the advertising of alcoholic beverages (79)) but the determination of a participant's age on social media sites such as Facebook depends on self-declared birth dates. Recent evidence from the United Kingdom (41) indicates that among 8-year-olds, 1 child in 12 has a social media page (usually on Facebook) despite a requirement that users should be aged over 13 years; among children aged 9 years, this rises to 1 child in every 7.

Which marketing methods?

Risk reduction means excluding broadcasting times when significant numbers of children are exposed, and excluding marketing techniques with special appeal to children and adolescents, such as cartoon characters, animation, celebrities, sports personalities, and the colouring, shaping and design of products and packaging likely to have a particular appeal for children and adolescents. The use of techniques specific to digital media and social networking are poorly researched. Recent evidence from the United Kingdom (41) indicates that large numbers of young children own or regularly use a smartphone (including 1 in 50 children aged 5–7 years) capable of browsing the internet and downloading software, which may include advertisements, brand images and logos embedded in games or other apps.

Which costs and benefits?

When developing policies, regulatory authorities may need to answer questions about the cost to the state or to economic interests, and the benefits to public health, of a policy which restricts marketing activities. However, very little is available in the public health literature to guide policy-makers, with one of the few papers on the subject suggesting that TV advertising controls are highly cost-effective compared with most other interventions to tackle child obesity (80). The most comprehensive attempt to analyse the costs and benefits of advertising controls was undertaken in the development of the Ofcom proposals to restrict the marketing of foods and beverages on TV in the United Kingdom (81); this showed that the preferred option gave rise to a net benefit.

Action in EU countries

The European Parliament and Council of the EU adopted the Audiovisual Media Services Directive on 10 March 2010 (Directive 2010/13/EU) (84) amending and renaming the Television without Frontiers Directive. Advertising unhealthy food and drinks in children's programmes is addressed in the Directive through Article 9 (2) stating:

Member States and the Commission shall encourage media service providers to develop codes of conduct regarding inappropriate audiovisual commercial communications, accompanying or included in children's programmes, of foods and beverages containing nutrients and substances with a nutritional or physiological effect, in particular those such as fat, trans-fatty acids, salt/sodium and sugars, excessive intakes of which in the overall diet are not recommended.

The majority of the EU countries rely on general advertising regulations, which do not specifically address the promotion of HFSS food and beverage products to children, and on self-regulatory mechanisms which may or may not include specific controls to limit the promotion of such products to children.

Austria

A self-regulatory code of conduct based on national implementation of Directive 2007/65/EC (85) has been in operation since February 2010. The Austrian Communications Authority (KommAustria) was set up under the KommAustria Act for the purpose of handling the administration of regulatory activities in broadcasting. The Audiovisual Media Services Act (formerly the Private Television Act) (86) implements the EU's Audiovisual Media Services Directive and expands the Authority's substantive control over broadcasting to include audiovisual media services on the internet. The Federal Communications Board was set up as an appeals authority within the Austrian Federal Chancellery in order to review the decisions of KommAustria. Discussions continued up to 2012 about action to reduce further the marketing of food and beverages to children but no decision has been taken so far.

Belgium

A 2007 White Paper has been partly implemented by a self-regulatory code. In 2008, the Flemish government and parliament approved a code of conduct in which promotion of the excessive consumption of HFSS foods is not allowed. Advertising should be clearly aimed at certain age groups (under 12 years and under 16 years). The Flemish Regulator for the Media monitors compliance with the code and handles complaints, with the mission of enforcing the media regulations in the Flemish community, settling disputes related to the media regulations and issuing media recognition and licences in accordance with the regulations. For the French community, the code is regulated through the Conseil supérieur de l'audiovisuel, which is responsible for regulating the Audiovisual Federation Wallonia-Brussels and is mainly responsible for monitoring compliance. For the German-speaking community, compliance is monitored through the Medienrat, which serves as independent regulator of the audiovisual media in that community.

In Flanders, the Minister of Public Health, Wellbeing and Family signed a collective agreement in March 2010 with the Federation of the Food Industry for Flanders. As part of that agreement, the Federation developed a self-regulatory code to restrict the marketing of food and beverages to children. The code applies to all advertising for food and drinks in Belgium. It has a special focus on children, and more specifically restricts the use of public figures for advertising purposes. The application of the code is controlled by the Jury for Ethical Practices in Advertising.

Bulgaria

A national food and nutrition plan was developed for 2005–2010. The plan was multisectoral in approach and included activities to address overweight, obesity and the development of new standards for the marketing of foods. In 2010, implementation had reached the stage of preparation of a panel discussion with stakeholders (including institutions, producers, traders, nongovernmental organizations and the media) on the initiation of national measures to reduce the advertising of unhealthy foods and beverages to children.

The National Ethical Standards for Advertising and Commercial Communication developed an ethical code in September 2009 which has been adopted by the National Council for Self-regulation. The Council is an independent body for the self-regulation of advertising and commercial communication. After consultations with distinguished professionals, it creates, revises and assures the voluntary application of ethical standards and good practices in the advertising industry with the aim of providing protection for consumers, the principles of fair competition and the interests of society as a whole. In 2010, consultations were under way on national measures to reduce the advertising of unhealthy food and beverages to children. A framework for responsible commercial communication about food and drink has been developed and adopted by the Council as an integral part of the ethical code. This specifies the application of some of the general rules of the code to food and drinks, and should be interpreted and applied together with the code itself. The framework sets special requirements for advertising and communication aimed at children because of their lack of experience and limited capacity to assess such information. The regulations for the application of the National Ethical Rules of Advertising and Commercial Communication regulate the organs, mechanisms, terms and conditions of the application of the ethical code.

Cyprus

A second national nutrition plan was adopted in 2007 involving specific action to address marketing pressure on children, but no further details have been reported.

Czech Republic

In 2008, the Czech Advertising Standards Council launched a self-regulatory Code of Advertising Practice. No further details are reported.

Denmark

The government considers that unhealthy food advertising to children should be eliminated through self-regulation, with possible further action if this does not work, in which case it will support EU regulation. The private self-regulating Forum of Responsible Food Marketing Communication, which was launched in December 2007, has developed a code of responsible marketing communication for food advertising targeted at children. The partners in this initiative are the Danish Food and Drink Federation in the Confederation of Danish Industries, the Danish Chamber of Commerce, the Federation of Retail Grocers in Denmark, TV2 | DANMARK, the Danish Brewers' Association, the Danish Newspaper Publishers' Association, the Danish Association of Advertising Agencies, the Danish Association of Internet Media, the Danish Association of Advertising and Relationship Agencies and the Danish Magazine Publishers' Association.

Estonia

Commercial advertising is prohibited in kindergartens, primary and secondary schools and vocational schools. Otherwise there are no specific regulations restricting the marketing of unhealthy foods to children.

Advertising targeted at children is regulated by the Advertising Act and the Consumer Protection Act and should not be aggressive; that is, it should not directly invite children to buy a marketed product themselves or to take up a marketed service themselves or cause their parents or other adults to do so.

The Association of Advertising Agencies and the Consumer Protection Board have together prepared a guide explaining the meaning of aggressive advertising targeted at children. Currently, no specific regulations restrict the marketing of unhealthy foods to children, although there are guidelines from the Consumer Protection Board on, for example, the advertising and sale of energy drinks to children in order to ensure ethical and moral standards in this area. Nevertheless, campaigns targeting children are permitted, including campaigns where prizes are awarded if the food is consumed or lots are drawn. The national TV channel is the only one where commercial advertising is not permitted.

Finland

In October 2005, a consensus was reached about evidence-based current care guidelines on preventing and treating childhood obesity, and the National Consumer Ombudsman published guidelines on the marketing of food to children. A new government innovation fund has been established to improve collaboration with the food industry.

In June 2008, the government adopted a resolution on the development of guidelines for health-enhancing physical activity and nutrition. The main targets include reducing the prevalence of obesity and the intake of saturated fat, salt and sugar and increasing the intake of vegetables and fruit (particularly berries). As a part of this resolution, the government has set special development priorities for children, young people and families. According to these priorities, "Food marketed to children and young people should not be contradictory with health promotion message; if necessary, the state will create regulatory systems alongside corporate self-regulation that restrict marketing of unhealthy foods to children and young people and ensure efficient monitoring of the regulations" (87).

Implementation and monitoring of the government resolution is coordinated and followed up by the Ministries of Social Affairs and Health, Education, and Agriculture and Forestry. The National Nutrition Council, which includes representatives of research institutions, food control authorities, nongovernmental organizations and private sector parties, acts in an advisory capacity.

There are no specific regulations restricting the marketing of unhealthy foods to children. Authoritative recommendations have, however, been drafted by the Consumer Agency, the Consumer Ombudsman and the National Public Health Institute, using the National Food Agency and the National Board of Education as experts. These recommendations are largely based on the relevant provisions of the Consumer Protection Act and discuss good advertising practices, misleading advertising and means of marketing.

In 2007, the National Board of Education and the National Public Health Institute recommended that schools should not provide vending machines selling sweets and beverages on their premises.

France

As well as the Ministry of Health, the policy-making bodies responsible for addressing regulations concerning marketing to children are the Department for Competition, Consumption and Suppression of Fraud, the Ministry of Culture and Communication (responsible for the development of the media) and the Higher Council for the

Broadcasting Sector, which is an independent administrative authority controlling the objectives, content and broadcasting of advertisements.

The Public Health Act of 2004, through the implementation of the Second National Nutrition and Health Programme, includes two articles concerning the advertising of food and the banning of food vending machines in schools. The first article stipulates that TV and radio commercials for beverages with added sugar, salt or artificial sweeteners and manufactured food products must contain the following health messages: "For the sake of your health, do not eat foods that contain too much fat, sugar or salt," "For the sake of your health, eat at least five servings of fruit and vegetables every day," "For the sake of your health, avoid eating snacks" and "For the sake of your health, do regular physical exercise." The same obligation applies to the promotion of these beverages and food products, although advertisers can avoid this by paying a tax equal to 1.5% of the annual amount they pay for advertising these types of product.

In 2008, the Minister of Health outlined the government's intention to regulate advertising for food and drinks during children's TV programmes. She called for self-regulation by the industry, stating that if this failed she would look at the possibility of legislation banning advertisements. Several months of dialogue followed between those in favour of banning food advertising targeting children (a campaign coordinated by the French Public Health Society and the National Consumer Organization) and those advocating less authoritative measures (mainly advertising advocates and broadcasting professionals).

As a result of this consultation, the Ministry of Health and the Ministry of Culture and Communication adopted a charter in 2009 to promote healthy diet and physical activity in TV programmes and advertisements. The document expresses the commitment of professionals such as those in TV production, advertising and communication, food manufacture, and private and public TV broadcasting. A reassessment is to be carried out of the code of conduct applied by advertising professionals in accordance with the rules of the Second National Nutrition and Health Programme.

Germany

The Federal Ministry of Health and the Federal Ministry for Food, Agriculture and Consumer Protection have made the promotion of healthy lifestyles the main health and nutrition policy objective, placing strong emphasis on overweight and obesity. The Federal Government's National Action Plan "IN FORM – German national initiative to promote healthy diets and physical activity" involves, inter alia, meetings with industry aimed at making it refrain from any advertising targeting children aged under 12 years and formulating a voluntary code of conduct for advertising activities targeting older children and adolescents.

According to federal law, marketing must comply with the legal framework established to control unfair competition. The law prohibits any type of advertising that directly invites children to buy a marketed product themselves or to take up a marketed service themselves or cause their parents or other adults to do so. Advertising on the radio and on TV as well as teleshopping are subject to the provisions on the protection of minors laid down in section 6 of the Interstate Treaty on the Protection of Human Dignity and the Protection of Minors in Broadcasting and Telemedia Services.

The German Advertising Federation has developed a code of conduct for the protection of children with regard to advertising on radio and TV. The general rules of the code emphasize that advertising should not: abuse consumers' confidence, undermine a healthy and active lifestyle, undermine a balanced and healthy diet and encourage excessive consumption. For children, the code stipulates that there be no direct demand to purchase, no direct demand for children to induce their parents to purchase, no exploitation of confidence and no inducements.

Greece

There is no official government measure or legislation addressing the marketing of food to children. In the private sector, however, a self-regulating set of rules known as the Hellenic Code on Advertising Communication Practice has been established by the Hellenic Association of Communication Agencies and the Hellenic Advertisers Association.

Hungary

Marketing in institutions for children under the age of 14 years is prohibited. There is also an advertising code of ethics, developed by the self-regulating marketing body. A proposal for the limitation of marketing of food and beverages to children was included in the Food and Nutrition Action Plan for Hungary 2010–2013, but this Plan has not been approved by the government.

Ireland

The 2005 Children's Advertising Code contains statutory controls to regulate some aspects of TV advertising of unhealthy food to children. In June 2009, a new Broadcasting Act made provision for a new Broadcasting Authority to introduce regulations to protect children from advertising of HFSS foods through the broadcast media. The Broadcasting Authority has reviewed the Children's Commercial Communications Code, which is a statutory instrument.

Italy

In May 2007, the National Health Plan was approved by the government and promoted by the Ministry of Health for fighting cardiovascular diseases, cancer, diabetes, obesity and chronic food diseases. In this Plan, a section on food advertising to children proposes the monitoring of marketing messages and the reduction of advertising through self-regulation.

Latvia

In August 2006, regulations were adopted by the Cabinet of Ministers with the aim of restricting and controlling the marketing of beverages and foods of limited nutritional value (such as soft drinks, confectionery, chewing gum and savoury snacks containing specific additives) in pre-school institutions and schools, and of creating the conditions for making healthy foods easily available.

The existing legislative framework with regard to advertising to children is the Advertising Law, which is general and does not contain a definition of advertising to children. In 2008, the Ministry of Health attempted to propose some amendments to the Advertising Law regarding the marketing of foods to children. After several meetings with stakeholders, it was decided to adopt a self-regulatory approach. A consensus document between the Ministry of Health and the Latvian Food Enterprises Federation, agreed after several meetings, has been developed. In September 2011, the Ministry of Health signed a Memorandum of Cooperation with the Federation of Food Enterprises and the soft drink business association on changes to children-oriented soft drink advertising.

Lithuania

A draft law on advertising is being processed which prohibits advertisements for confectionery, soft drinks and snacks on TV and radio programmes as well as in press publications intended for children.

The Procedure for Nutrition of School-children in Secondary Schools, adopted in 2010 by Order No. V-645 of the Minister of Health, restricts the supply of HFSS food and products in the nutrition of schoolchildren.

The Procedure for Pupil Nutrition in Nursery Schools, Primary and Secondary Schools and Foster Homes, adopted in 2011 by Order No. V-946 of the Minister of Health, restricts the supply of HFSS food and products to all children's establishments. Article 17 prohibits foodstuffs which contain more than 0.4 mg/100 g of sodium.

Luxembourg

In 2009, Luxembourg set up a code of practice for advertising that applies to all media and is handled by the Commission for Ethics in Advertising.

Malta

The Broadcasting Code for the Protection of Minors, which came into force on 1 September 2000 and was amended in 2010, states in paragraph 19: "Advertisements for confectionery and snack foods shall not suggest that such products may be substituted for balanced meals".

On 22 February 2012, the Ministry for Health, the Elderly and Community Care launched the Healthy Weight for Life strategy for 2012–2020. This also addresses the reduction of marketing of HFSS foods to children.

Netherlands

In recent years, the Ministry of Health, Welfare and Sport has had several meetings with the Food Industry Federation to discuss what to expect in the form of self-regulation by the industry.

In June 2010, the Ministry of Health initiated year-long research (undertaken by the Dutch Consumers Organization) to monitor the action taken by the food industry regarding marketing to children aged 7–12 years. In the self-regulation process during the period 2010–2012, the code of conduct on advertising of foods was sharpened. The Food Industry Federation has called on its members to be reserved in marketing aimed at children aged 7–12 years, and has taken the initiative to monitor its members' marketing activities aimed at children.

Poland

The existing legislation related to advertising aimed at children comprises the Act of 23 August 2007 on combating unfair commercial practices and the Broadcasting Act of 29 December 1992. Article 9 of the former stipulates that: "In all circumstances, the following aggressive commercial practices shall be regarded as unfair commercial practices: including in an advertisement a direct exhortation to children to buy advertised products or persuade their parents or other adults to buy advertised products for them".

On 8 July 2010, the Federation of Food Producers created a voluntary code of food advertising to children, based on the solutions contained in the EU pledge (20). The code prohibits advertising of food in the media when more than 50% of the audience consists of children aged under 12 years. In addition, the code does not allow the advertising of food in primary schools. Restrictions on the advertising of food products do not apply to products that meet specific nutritional criteria based on accepted and documented scientific evidence and/or national and international dietary recommendations.

In practice, this could mean a significant reduction in the amount of advertising of products whose consumption in excess can contribute to weight gain or obesity in TV advertising, magazines and web sites aimed at children.

The code also affects the content of food advertising aimed at children. Among other things, it prohibits the promotion of unhealthy eating habits in advertising that aims to discredit the importance of a varied and balanced diet and physical activity.

Portugal

A self-regulatory code has specific rules for the food and drinks sector, addressing the use of celebrities and well-known characters and marketing targeting younger schoolchildren.

Romania

Ministerial Order 1563/2008, which addresses the approval of the list of foods not recommended for pre-school and schoolchildren and the principles underlying healthy diets for children and adolescents, established the criteria for which specific food items should not be recommended. These food items are banned from sale on school premises in order to encourage schoolchildren to adopt healthy dietary habits.

Slovakia

The National Programme on Nutrition Improvement for 2006–2010, the National Obesity Prevention Programme (adopted on 9 January 2008) and the National Programme of Care for Children and Adolescents (adopted in March 2008) include educational activities focused on reducing the consumption of HFSS foods by adults, children and adolescents. The government is planning to develop policies to reduce the impact of the marketing of HFSS foods to children.

Slovenia

In May 2010, a law on school nutrition was adopted (88). In this law, there is an official ban on vending machines for food and beverages in school environments.

In 2011, the Minister of Health set up a working group at the Ministry, including representatives of the Ministry, the National Institute of Public Health, the Ministry of Education, the Ministry of Culture, the Post and Electronic Communications Agency, the paediatric clinic and the Faculty of Social Sciences at the University of Ljubljana, the Kranj Regional Institute of Public Health, the Slovene Consumers' Organization, the Slovene Heart Association and the United Nations Children's Fund. The working group has produced recommendations for the Ministry of Health and the government as regards the activities that would be necessary in an action plan, with the aim of reducing marketing pressure regarding foods and beverages on children.

The Second Food and Nutrition Action Plan for Slovenia 2012–2022 highlights the importance of activities aimed at reducing marketing pressure for foods and beverages on children. The new Plan is in preparation and is expected to be adopted during 2013.

A media law was adopted in 2011 under which the Ministry of Health has to develop guidelines, including nutrition profiles, for reducing marketing pressure on children (89). Article 23 states the following:

- (1) Media service providers have to develop and announce publicly available codes of conduct regarding inappropriate audiovisual commercial communications, accompanying or included in children's programmes, of foods and beverages containing nutrients and substances with a nutritional or physiological effect, in particular

those such as fat, trans-fatty acids, salt/sodium and sugars, excessive intakes of which in the overall diet are not recommended.

(2) Codes of conduct have to be developed/formulated in a way which enables the development of healthy nutrition habits in children and adolescents, in accordance with nutrition guidelines of the Ministry of Health.

Slovenia participated as a test country in the development of the WHO manual for nutrition profiles in April 2012. The government is reviewing the possibility of developing nutrient profiling as a first step in controlling marketing pressure on children.

Spain

A government-sponsored code of self-regulation of the advertising of food products directed at minors and the prevention of obesity was launched in 2005 and covers 95% of food and beverage TV advertising to children. It includes a copy advice procedure for pre-vetting advertisements, and enforcement and monitoring bodies. In 2009, TV broadcasting companies agreed to ban advertising that does not observe the standards of the code.

In 2010, the Food Safety and Nutrition Agency proposed regulations to reduce the number of advertisements aimed at young people under the age of 18 years between the hours of 06:00 and 22:00, to prohibit gifts and rewards given with food and beverages and to prohibit any type of marketing to children in schools.

Article 46 of the Food Security and Nutrition Act, published in July 2011, provides that food advertising aimed at children aged under 15 years must follow the rules of conduct and self-regulation in order to promote healthy habits and prevent obesity. Article 40.7 of the same Act provides that schools are protected areas as regards advertising and promotional campaigns, and that any marketing activities relating to nutrition or healthy habits must be authorized beforehand, based on the criteria established by the education and health authorities.

Sweden

The General Marketing Act includes a ban on any advertising targeted at children under the age of 12 years on national radio and TV before and during children's programmes. People associated with children's radio or TV programmes are not allowed to take part in advertising targeted at children under the age of 12 years. According to European legislation, the ban only covers broadcasts originating in Sweden.

The majority of such advertisements have come from two Swedish-language channels based in the United Kingdom. These channels have recently and voluntarily stopped advertising food to children and, with the United Kingdom's new broadcasting code that includes restrictions on the marketing of HFSS foods to children, Sweden will probably have relatively little marketing of food to children on TV.

United Kingdom

Statutory rules apply to advertisements for HFSS foods on TV channels dedicated to children, in or around programmes aimed at children (including pre-schoolchildren), or in or around programmes that are likely to be of particular appeal to children aged 4–15 years. The definition of particular appeal is that the programme attracts children in excess of their proportion in the population (by 20% or more).

The United Kingdom is a major provider of satellite channel content throughout much of the European Region. Under EU cross-border rules, the regulations applying in the United Kingdom apply to channels transmitting from the United Kingdom to other jurisdictions.

In March 2011, the Advertising Standards Authority's remit was extended to cover marketers' own marketing claims on their own web sites and in other non-paid for space that they control.

The Code of Advertising Practice extension covers:

... advertisements and other marketing communications by or from companies, organizations or sole traders on their own web sites, or in other non-paid-for space online under their control, that are directly connected with the supply or transfer of goods, services, opportunities and gifts, or which consist of direct solicitations of donations as part of their own fund-raising activities.

Previously, the Advertising Standards Authority's remit online was limited to paid-for advertisements (such as pop-ups and banner advertisements) and sales promotions, wherever they appeared.

In practice, this means that the provisions of the Code of Advertising Practice now apply to advertisers' own web sites and advertising on social media sites. These provisions prevent: marketing to children that uses promotional offers, licensed characters or celebrities in food advertisements other than for fruit and vegetables; food advertisements that condone or encourage poor nutritional habits or dietary practice; and food advertisements that encourage peer power or use hard sell or high pressure techniques.

Activities by non-EU WHO European Member States

Albania

No action has yet been taken regarding a reduction in the marketing of food and beverages to children. However within the framework of bilateral collaboration between the Ministry of Health and the Regional Office, it has been agreed that a policy on marketing of HSSF foods to children would be developed during the biennium 2012–2013.

Andorra

No action has yet been taken regarding a reduction in the marketing of food and beverages to children.

Armenia

No action has yet been taken regarding a reduction in the marketing of food and beverages to children.

Azerbaijan

In 2012, the National Institute of Public Health initiated a project with the aim of developing policy and a draft national strategy on the marketing of food and beverages to children. To this end, plans are being made to carry out research with the aim of defining the exposure of children to different types of commercial and through different media in the near future. Furthermore, within the framework of bilateral collaboration between the Ministry of Health and the Regional Office, it has been agreed that a policy on marketing of HSSF foods to children would be developed during the 2012–2013 biennium.

Belarus

No action has yet been taken regarding a reduction in the marketing of food and beverages to children.

Bosnia and Herzegovina

No action has yet been taken regarding a reduction in the marketing of food and beverages to children.

Croatia

In 2012, the National Institute of Public Health initiated a project with the aim of developing policy and a draft national strategy on the marketing of food and beverages to children. To this end, plans are being made to carry out research with the aim of defining the exposure of children to different types of commercial and through different media in the near future. Furthermore, within the framework of bilateral collaboration between the Ministry of Health and the Regional Office, it has been agreed that a policy on marketing of HSSF foods to children would be developed during the 2012–2013 biennium.

Georgia

No action has yet been taken regarding a reduction in the marketing of food and beverages to children.

Iceland

In April 2011, a new media law was passed banning advertisements adjacent to programmes intended for children under the age of 12 years. Commercial communications and teleshopping are also prohibited from encouraging minors to consume food and beverages that may be considered as unhealthy.

Israel

The Ministry of Education has published guidelines on nutrition in educational institutions to prevent the marketing of energy-dense and nutrient-poor food and beverages in schools and other educational locations.

Kazakhstan

No action has yet been taken regarding a reduction in the marketing of food and beverages to children.

Kyrgyzstan

No action has yet been taken regarding a reduction in the marketing of food and beverages to children.

Monaco

No action has yet been taken regarding a reduction in the marketing of food and beverages to children.

Montenegro

The Food and Nutrition Action Plan addresses the issue of development and introduction of control of marketing of food and beverages for children. The Ministry of Health, Ministry of Agriculture, the food industry and consumers' associations are the implementing institutions for these activities.

The Law on Food Safety of 21 December 2007, article 30, defines the marketing and presentation of food products, design, the environment for presentation of food products and information on food products available in the print and other media. Under the Law, it is not allowed to decoy consumers and it is forbidden to attribute any healthy/healing effects to the products.

According to the Law on Protection of Consumers of 16 May 2007, article 88, it is forbidden to: advertise food for minors, advertise food with minors as actors, and use advertisements for food that can lead minors to behave in a way that can impair their health or psychological and moral development.

Furthermore, within the framework of bilateral collaboration between the Ministry of Health and the Regional Office, it has been agreed to collaborate in this area in order to facilitate policy processes and mechanisms regarding food marketing communications to children, in order to reduce the impact on children of the marketing of HSSF foods during the 2012–2013 biennium.

Norway

An updated policy to reduce the exposure of children to advertising practices relating to unhealthy foods was developed in 2012 by the government and is now subject to public consultation. The proposed new policy provides an example to other European Member States to take action to reduce the exposure of children to the marketing of foods high in saturated fat, trans-fat, free sugars or salt. Since 2007, Norway and several other Member States have worked closely within the remit of an action network, led by Norway, on the marketing of food to children. This work and the support of the government have been instrumental in the adoption of recommendations and action to protect children from the pervasive effect of undesired marketing practices.

Republic of Moldova

Law No. 10 on the State Surveillance of Public Health of 2009, article 38 (3) stipulates that reducing the marketing pressure for energy-dense food, especially on children, is an action point to control the epidemic of obesity. Ministry of Health Decision No. 13 of 31 July 2007 forbids the marketing in institutions for children of energy-dense food with a high content of fat and reduced nutritional value, such as soft drinks with or without food additives, food with a high content of fat such as chips and similar products, pastry products with cream, chewing gum, toffees and fast-cooking pasta.

Russian Federation

No action has yet been taken regarding a reduction in the marketing of food and beverages to children.

San Marino

No action has yet been taken regarding a reduction in the marketing of food and beverages to children.

Serbia

No specific action has been taken in the period 2010–2012 regarding reducing marketing pressure on children. However, the action plan of the strategy for prevention and control of noncommunicable diseases includes action aimed at reducing the marketing of HSSF foods to children.

Switzerland

No action has been taken regarding a reduction in the marketing of food and beverages to children. In 2012, however, a new nutrition policy for 2013–2016 was published, based on the main findings from the sixth Swiss nutrition report. This report presents the current nutritional situation and provides practical guidance for improving the nutritional and health situation at the population level. The nutrition policy defines the country's objectives and priorities on nutritional issues. By implementing this policy, Switzerland is taking essential steps towards the prevention of noncommunicable diseases, and recognizing that advertising messages generally do an inadequate job of raising awareness of the HFSS content of food and beverages. The policy also states that state institutions can, for example, adopt measures on a voluntary or statutory basis at the structural level, the former preferably in cooperation with the business community.

Tajikistan

A government decree of 26 December 2011 adopted amendments to the law on advertisements to ban the advertising of artificial food products intended for children.

The former Yugoslav Republic of Macedonia

No action has yet been taken regarding a reduction in the marketing of food and beverages to children but the Ministry of Health has included the development of the first steps in this field within the scope of the project collaboration with the Regional Office.

Turkey

During the academic year 2011–2012, the sale of some foods and drinks (soft drinks and chips) that impair health and cause obesity in children was forbidden in school canteens.

A new article has been added to the regulation for radio and TV broadcasting practices about the advertising of food and drinks for children (especially in children's programmes).

Turkmenistan

No action has yet been taken regarding a reduction in the marketing of food and beverages to children.

Ukraine

No action has been taken so far, although there are plans to address marketing to children in the Health 2020 Action Plan.

Uzbekistan

In 2011, the Ministry of Health banned the sale of energy-dense and nutrient-poor food and beverages near schools and kindergartens. The national noncommunicable diseases strategy has an action point on this issue. Limitations or bans have also been placed on the advertising of unhealthy foodstuffs and limitations on the sales of unhealthy products near academic institutions and venues for children's sports and entertainment activities.

Overview

Table 2 gives an overview of the foregoing information on the implementation of policy action with regard to restrictions on the marketing of food and beverages to children. Countries are categorized as: "no implementation," "partially implemented" or "fully implemented," according to the scoring system for the data presented in the country information templates. These were completed by the WHO nutrition counterparts at national level and followed up by an additional validation check with the national representative counterparts at country level.

Multilateral activities and cross-border regulation

The variety of different governmental approaches to food advertising targeting children can create a situation where advertising is allowed in one country but banned in another in the Region. Marketing messages transmitted via satellite TV, internet-based TV channels, other internet content, imported cinema films, and imported games, videos and entertainment media can undermine national food policies and increase children's exposure to commercial messages (90).

There are legal barriers that limit governments' ability to restrict food marketing from outside their national jurisdictions, and multilateral agreements need to be reached to ensure consistent and adequate protection. In the EU, audiovisual directives currently allow countries to adopt their own measures restricting marketing to children, but commercial messages originating in one country and received in another are subject to the prevailing laws in the originating country, not the receiving country. Details of the regulatory framework at EU level are available in the relevant European Commission web sites and the book *EU law and obesity prevention* (91).

In 2008, a network of European governments was established, coordinated by the Directorate of Health of the Norwegian Ministry of Health and Care Services. The WHO European Network on reducing food marketing pressure on children consists of Member States in the WHO European Region who want to work together to find ways to reduce the marketing pressure on children for high salt, energy-dense, micronutrient-poor foods and beverages. In 2009 it published a *Code on marketing food and non-alcoholic beverages to children* (12). The views expressed by Network members are not necessarily the official views of the countries or organizations represented.

Table 2. Overview of implementation status of marketing food and beverages to children in the WHO European Region

Country	No implementation	Part implementation	Full implementation
Albania	✓	–	–
Andorra	✓	–	–
Armenia	✓	–	–
Austria	–	✓	–
Azerbaijan	✓	–	–
Belarus	✓	–	–
Belgium	–	✓	–
Bosnia and Herzegovina	✓	–	–
Bulgaria	–	✓	–
Croatia	–	✓	–
Cyprus	✓	–	–
Czech Republic	–	✓	–
Denmark	–	–	✓
Estonia	–	✓	–
Finland	–	✓	–
France	–	–	✓
Georgia	✓	–	–
Germany	–	✓	–
Greece	–	✓	–
Hungary	–	✓	–
Iceland	–	✓	–
Ireland	–	✓	–
Israel	–	✓	–
Italy	–	✓	–
Kazakhstan	✓	–	–
Kyrgyzstan	✓	–	–
Latvia	–	✓	–
Lithuania	–	✓	–
Luxembourg	–	✓	–
Malta	–	✓	–
Monaco	✓	–	–
Montenegro	–	✓	–
Netherlands	–	✓	–
Norway	–	–	✓
Poland	–	✓	–
Portugal	–	✓	–
Republic of Moldova	–	✓	–
Romania	–	✓	–
Russian Federation	✓	–	–
San Marino	✓	–	–
Serbia	✓	–	–
Slovakia	✓	–	–
Slovenia	–	–	✓
Spain	–	–	✓
Sweden	–	–	✓
Switzerland	✓	–	–
Tajikistan	–	✓	–
The former Yugoslav Republic of Macedonia	✓	–	–
Turkey	–	✓	–
Turkmenistan	✓	–	–
Ukraine	–	✓	–
United Kingdom	–	✓	–
Uzbekistan	–	✓	–

Industry self-regulation

Large food companies participate in a variety of voluntary initiatives or pledges at global, regional and country level. A number of codes exist which cover the general principles of marketing products to children, including two that address food and beverage marketing: the Principles of Food and Beverage Product Advertising, developed in 2004 by the Confederation of the Food and Drink Industries of the EU (now called FoodDrinkEurope) (92), and the International Chamber of Commerce framework for responsible food and beverage communications, also developed in 2004 (93). These codes provide general principles on the nature of marketing communications, such as that they should not encourage excessive consumption, undermine the promotion of healthy diets or obscure the distinction between programme and editorial content and advertising. These codes have been adopted as self-regulatory measures in many European countries.

Further voluntary measures have been proposed by specified companies or company groupings, including the International Food and Beverage Association's Global Policy on Marketing and Advertising to Children (2007 and subsequent revisions) (94), the International Council of Beverages Associations' Guidelines on Marketing to Children (2009) (95), the EU pledge (2007 and subsequent revisions) (20) and a series of commitments made by members of the EU Platform on Diet, Physical Activity and Health (2005 onwards) (96). These voluntary pledges made by companies and company federations have been recognized as a step further in restricting marketing to children, but their shortcomings have been criticized by nongovernmental organizations promoting public health, child protection and consumer rights (97). Specific concerns include that:

- many companies have not endorsed the pledges and commitments;
- the criteria for advertising may permit continued brand promotion and the use of brand equity cartoon characters (characters associated with a product);
- the criteria for media may not include advergames, product placement, social network marketing, e-mail and mobile phone marketing, and marketing on internet sites owned by companies (the EU pledge has announced that marketing communications on company web sites will be included in 2012);
- the criteria for child-targeted TV programmes are based on audience proportions and allow advertising during many TV programmes which are watched by large numbers of children;
- the inconsistencies create confusion among the public and great difficulty in assessing companies' compliance;
- the pledges and commitments are voluntary and can be changed or abandoned without notice;
- the pledges and commitments are inconsistent between different companies, countries and media;
- in particular, the nutrition criteria defining which products are restricted differ between each company and are much weaker than regulatory proposals;
- the age criteria are under 6 years for most company voluntary pledges and commitments, under 12 years for some of them, 15 years for at least 1 country, with other age limits in some specific non-EU WHO European Member States;
- most children aged under 12 years are also exposed to advertising targeted at children aged 13–16 years, which is not specifically addressed by the pledges and commitments;
- the implementation of the pledges and commitments lacks coherent and independent monitoring and evaluation.

Reports published by the EU pledge coordinators have indicated a high level of compliance by member organizations, with a reduction of some 93% in the number of company-defined non-compliant products being advertised during TV programmes where the audiences consist of 50% or more children aged under 12 years, comparing 2009 with 2005 (20). The achievement of a reduction of 93% by 2009 had deteriorated to a reduction of 79% by 2011 (although the numbers are not strictly comparable as they are based on different countries and additional companies) (20). The 2011 report gives estimates for children's exposure to advertisements for non-compliant products across family and daytime TV, which indicates a reduction between 2005 and 2011 of 29% (Table 3).

Table 3. Reduction in exposure of children to advertisements for EU pledge non-compliant products (specified by the manufacturer), 2005–2011

	1 st quarter 2005	1 st quarter 2011	Change (%)
France	1031	673	–35
Ireland	58	32	–45
Netherlands	111	153	38
Poland	1618	1019	–37
Portugal	264	199	–25
Romania	462	434	–6
Slovenia	23	29	26
All countries reported	3567	2539	–29

Note. Number of impacts (in millions) and percentage change from first quarter 2005 to first quarter 2011, for exposure of children during all programming.

Source: EU pledge (20).

Monitoring by other organizations has given a more nuanced picture of change in TV advertising in recent years. Figures from the United States, where a similar set of voluntary pledges and commitments has been in operation, indicate that the exposure of younger children to all food advertising fell by under 9% in 2011 from a peak in 2004, while the exposure of adolescents to all food advertising increased by 22% in the same period (98). Although for the younger age group advertising declined for some food categories, fast food restaurant advertising increased by more than 20%. Research in two other countries with industry pledges and commitments, Australia (99, 100) and Canada (101), suggests that there has been little or no significant improvement in the exposure of children to TV advertising for unhealthy food products in the period since the mid-2000s, with advertising for fast foods particularly persistent.

In Europe, an analysis of advertising on German children’s TV channels in 2007 and again in 2010 (102) concluded that “... exposure to commercials for non-core foods and the use of techniques attractive to children are widespread and appear to have remained unaffected by the announcement of the EU Pledge in December 2007” (p.1).

In Spain, an analysis of the operation of the national self-regulatory code (the PAOS Code) (103) stated: “Non-compliance with the PAOS Code was very high and was similar for companies that did and did not agree to the Code, casting doubt on the Code’s effectiveness and oversight system.” (p. 1013).

Data for the United Kingdom indicate a shift from advertising during children’s programming to family-time programming. The United Kingdom introduced statutory restrictions in 2006, and the exposure of children to TV advertising for HFSS foods in 2009 compared with 2005 showed a significant decline of 37% despite an increase in children’s total viewing of commercial TV channels (104). Advertising of HFSS foods was virtually eliminated during specific programmes for children, but there had been an overall increase in HFSS advertising at other times of the day and children continued to be exposed to HFSS advertising, especially during TV programmes between 6 pm and 10.30 pm.

Gaps and weaknesses in current regulations: United Kingdom experience

It will be seen from the foregoing that there are significant new developments in advertising and promotional opportunities for foods and brands, and that regulatory responses have not kept up with them. Voluntary pledges and manufacturers’ commitments are welcome for their recognition of the need for action, but appear to be limited in their scope and can be abrogated without notice.

As noted above, the United Kingdom has introduced a range of measures, including statutory, self-regulatory and voluntary measures relating to TV, other broadcast media, non-broadcast media and online marketing. A review of the coverage of the regulations was commissioned by the Department of Health and undertaken in 2010–2011 (105, 106). It found gaps in the coverage of regulations in terms of both the communication channels and the marketing techniques (see Table 4). The regulations apply to advertising and to marketing communications which are directly connected with the supply of goods and services, such as sales promotions. The report notes, however, that the presentation of brands or products and their description or discussion in the media, including on web sites or mobile messaging, are not covered by the regulatory framework.

In-school marketing (other than sales promotions), product packaging, point-of-sale marketing and sponsorship (other than TV programme sponsorship) all fall outside any statutory or self-regulation measures. Techniques such as product and brand integration in digital media, formulation and presentation of products (including labelling, packaging and the design of the product itself), premiums and give-aways and peer-to-peer marketing are not regulated. Brand equity characters are specifically exempted from all regulations, codes and pledges. Cross-border marketing is poorly addressed by United Kingdom rules and codes. Product placement rules do not apply to TV programmes made outside the United Kingdom and the recently introduced code of practice for online advertising does not apply to advertising on non-United Kingdom registered web sites.

Table 4. Analysis of gaps and weaknesses in United Kingdom regulations protecting children from marketing of foods and beverages

Channel of communication
<p>TV advertising scheduling rules do not catch programmes watched by the largest numbers of children because of the way that child audiences are calculated.</p> <p>TV advertising content rules for food and drink do not all apply to children up to the age of 16 years. Some apply to pre-school and primary-aged children. Scheduling rules (Ofcom) apply up to the age of 16 years.</p> <p>TV product placement rules do not cover programmes or films made outside the United Kingdom.</p> <p>On-demand services are not subject to scheduling restrictions on HFSS advertising.</p> <p>Radio advertising content rules for food and drink do not all apply to children up to the age of 16 years. Some apply to pre-school and primary-aged children.</p> <p>Radio advertising scheduling is not subject to restrictions on HFSS advertising (unlike TV).</p> <p>Mobile marketing is not covered by food and drink rules unless the commercial messaging is defined as advertising.</p> <p>Vending is controlled in schools but not in other places where children may gather.</p> <p>Branding on vending machines is not covered by school food regulations.</p> <p>In-school marketing, such as voucher collection schemes, sampling or branded school equipment, is not subject to rules (except specified sales promotions).</p> <p>Product packaging is poorly controlled, with the exception of on-pack advertising for another product or sales promotion.</p> <p>Point of sale in-store communications are not defined as advertising.</p> <p>Sponsorship of HFSS food products is not restricted (other than programme sponsorship in broadcast media and specified sales promotion sponsorship).</p> <p>Peer-to-peer and viral promotion of HFSS food products are not restricted.</p>
Marketing technique
<p>Product and brand integration in digital media (such as product or brand placement in advergames) of HFSS food products is not restricted.</p> <p>Digital advertising rules are applicable to marketing communications “that are directly connected with the supply or transfer of goods, services, opportunities or gifts ...”. There are no restrictions on brand promotion to match those applying to TV brand promotion.</p> <p>Food labelling and packaging (including gifts, claims, cartoons and licensed characters) of HFSS food products are not restricted.</p> <p>Use of brand equity characters is not restricted.</p> <p>Formulation and presentation (including colours, flavours, shapes) of HFSS food products are not restricted.</p> <p>Premiums and give-aways (including toys with children’s meals) are not restricted.</p> <p>Promotions at points of sale (including shelf ticketing, product display, positioning in store, dump bins and in-store sampling) are not generally covered unless defined as advertising or sales promotions.</p>

Source: Landon (106).

An example of an industry code going beyond United Kingdom statutory or voluntary measures is the Advertising Association’s best practice principle on peer-to-peer marketing (107). This states that the Association’s members must ensure that: “Young people under the age of 16 should not be employed and directly or indirectly paid or paid-in-kind to actively promote brands, products, goods, services, causes or ideas to their peers, associates or friends.” Exemptions are made for child actors and children sponsored by sports or entertainment brands.

Recent United Kingdom studies show that exemptions to the voluntary pledges and self-regulation are heavily exploited. One study of the use of brand equity characters showed that they exclusively promote HFSS

products (108). Despite restrictions on the use of licensed characters in the code, an increasing number of non-licensed, company-owned cartoon characters promote HFSS food to children.

Research update

The last decade has seen a substantial increase in scientific research examining the extent of food advertising and brand promotion, children's recognition and understanding of advertising messages, and the effect of advertising on children's preferences, eating patterns and dietary behaviour.

A review of the scientific literature prior to 2009 was prepared for WHO by Cairns, Angus & Hastings (109) and summaries of published scientific research papers are compiled by the International Association for the Study of Obesity (17).

The following is a narrative summary of recent research findings, followed by a table of abstracts of relevant literature during the period 2009–2012 (Table 5).

Narrative review

Brand recognition starts in early childhood and is linked to differences in the expression of eating behaviour and weight status by the age of four years. As Robinson et al. (110) demonstrated, the appearance of brand imagery on food packaging enhances children's taste perception of the food item. This research was followed up by Forman et al. (111), who demonstrated that overweight children in particular respond to the presence of branded food packaging by increasing their food consumption. It has been established that the presence of logos and generic cartoon characters on food product packaging influences choice and intake.

One recent study has found that products using promotional company-owned characters which are attractive to children on their packaging have significantly worse nutritional profiles than products featuring sportspersons, celebrities or licensed characters (including film tie-ins) (112). Experimental data suggest that the inclusion of paid-for characters, such as those from films, on packaging improves children's ratings of the product's taste (113, 114). This effect was, however, weaker for carrots than for sweet or savoury snack foods and was absent when the product was unfamiliar and labelled as healthy.

There is a strong link between TV viewing and obesity in children. Recent data suggest that this relationship is mediated in part by the commercial content of viewing. In one study (115), viewing of advertisements was a predictor of subsequent excess bodyweight, even when physical activity and eating in front of the TV were taken into account. These data indicate the powerful influence of the commercial content of TV on children's health.

Recent studies of United Kingdom and global broadcasting to children show that food advertising during both children's and family TV schedules remains largely for unhealthy foods, and this is no better in non-peak viewing hours (116). Items such as fast food, high sugar breakfast cereals and chocolate/confectionary dominate advertising during children's peak viewing times. Advertisements directed at children and at adults differed in theme rather than nutritional value (117), with food products and restaurant experiences being marketed to children on themes of fun and taste and often featuring promotional characters of particular appeal to children and adolescents.

Data from an ongoing University of Liverpool analysis of the broadcast media suggest that in the United Kingdom between 2008 (a period of partial regulation) and 2010 (when full regulation was effective), there was a small reduction in overall food and beverage advertising. This is reflected in a reduction in the advertising of both core (healthy) and non-core (unhealthy) foods. However, the proportion of core versus non-core foods advertised remained constant, with an imbalance in the healthiness of the diet promoted towards foods with poorer nutritional profiles. An examination of child-specific programming shows that there has been a clear fall in food advertising. However, children's peak viewing time occurs during family scheduling, and no reduction in food and beverage advertising has been seen. This may suggest that some advertising has moved to family viewing. In certain categories there may have been an actual increase in advertising during children's viewing (for example, for fast food restaurants). Overall, these data suggest that despite full implementation of the regulation, children in the United Kingdom appear to be exposed to just as much food advertising as before full regulation.

An analysis of Swiss child-specific programming (118) found that 47% of food advertisements broadcast during children's programmes were for fast food. An increase in advertising for fast food has also been seen during children's viewing in the United States (119). Thus evidence from the Switzerland, the United Kingdom and the United States suggests that food advertising promoting HFSS foods remains a concern. In addition to this, a recently published global comparison (25) examined TV food advertising to children in 11 different countries

(Australia, Brazil, Canada, China, Germany, Greece, Italy, Spain, Sweden, the United Kingdom and the United States). During peak children's viewing time on the three commercial channels most watched by children, food advertising comprised 11–29% of total exposure to advertising. The proportion of advertisements for unhealthy foods varied between countries but was always the dominant form of food advertising, with little airtime devoted to the promotion of healthy products. Across the countries sampled, most of the advertisements containing persuasive marketing techniques were for non-healthy products.

With regard to impact, the existing literature has demonstrated the effects of food advertising on children's food energy intake and food preferences. In older children, weight status is linked to stronger responses to advertisements. In younger children this relationship is not always obvious, which suggests that weight gain takes time to manifest itself. New data suggest that the effects of advertisements on children's health may be linked to external factors such as excessive exposure to the media (120). The food preferences of children and young adolescents who habitually viewed a large amount of commercial TV are more affected by experimental exposure to food advertisements than those of children who watch less commercial TV. This is particularly apparent in their selection of branded food items following the viewing of food advertisements.

A recent study from the Republic of Korea (121) examined the relationship between children's weight status, their understanding of TV commercials and their attitudes to advertising. The researchers also asked the children's parents about their family TV viewing habits and the parents' control over, and verbal interactions during, viewing. The children generally knew about the purpose of TV commercials: 40% of them knew that commercials promoted products, 68% believed the commercials "wanted" the viewer to buy the products and 67% said TV stations broadcast commercials to make money.

With regard to family viewing patterns, the more time parents viewed TV with their children, the more critical children were towards the purpose of advertising. Similarly, the more parental control exerted over viewing, the more negative children's attitudes were towards advertising. A Dutch study (122) found that children reporting high maternal encouragement to be thin ate considerably more food when exposed to advertisements for energy-dense products in the absence of their caregivers. Parental concern does not necessarily, therefore, protect children from the effects of advertising and, depending on the nature of those health concerns, may in certain situations make matters worse.

A study of web sites that were promoted during food advertisements on children's dedicated TV channels in the United States found that 84% featured online games, 47% featured contests and competitions and 36% offered free downloads (123). With regard to the online games, a number of features to ensure continued user engagement were observed, including play-again options, access to higher levels, posting of high scores and opportunities to win free prizes. These features were all used to keep children on individual sites for longer, to encourage repeat visits and potentially to get children to engage their friends with the material. In a similar study conducted in Canada (124), 24 previously sampled web sites were examined and most (83%) were found to target children below the age of 12 years. In addition to replicating the findings of the United States study, this study found that half of the web sites had a mechanism for children to recommend them to a friend. Brand and product imagery permeated all these sites, with spokes-characters (brand equity) being by far the most common device. Brand logos appeared and were used to link to games, as game pieces, scenery and as game "buttons"

This is of some concern as this age group may lack the ability to recognize advertising content on the internet compared to broadcast media. A Swedish study employing state-of-the-art eye tracking has recently demonstrated that while adolescents were surfing the internet, food and beverage advertising had a relatively greater impact on their attention than other forms of promotion (125). The adolescents were aware of the purpose of the advertising but were unaware of much of the advertising to which they had been exposed.

Table 5. Selected scientific publications on the advertising of food and non-alcoholic beverages to children, 2009–2011

Authors	Finding
Effertz T, Wilcke AC (102)	On German TV, commercials for unhealthy foods were broadcast significantly more often during children's peak viewing and in children's programmes, with a higher use of promotional characters and premiums than were found in commercials for non-food products. Comparing 2007–2008 with 2010, the use of techniques attractive to children continued to be widespread for the promotion of less healthy food products, and exposure by children appeared to remain unaffected by the announcement of the EU pledge in December 2007.
Boyland E et al. (120)	After viewing the food commercials, all the children selected more branded and non-branded fat-rich and carbohydrate-rich items from food preference checklists compared with after viewing the toy commercials. The food preferences of children with higher habitual levels of TV viewing were more affected by commercial exposure to food than those with low levels of viewing. This is the first study to demonstrate that children who had previously been exposed to a high level of commercials seemed to be more responsive to food promotion messages than children who had been less exposed to advertising.
Kelly B et al. (126)	Australian children remain exposed to a disproportionate volume of TV advertisements for unhealthy foods on commercial TV, which are shown at times when the largest numbers of children are watching.
Huang L, Mehta K, Wong ML (127)	Singaporean children are exposed to high levels of advertising for unhealthy foods. The study provides a baseline against which measures aimed at reducing children's exposure to TV food advertising can be evaluated.
Andreyeva T, Kelly IR, Harris JL (128)	Among elementary schoolchildren, exposure to TV advertisements for sugar-sweetened carbonated soft drinks was associated with a 9.4% rise in children's consumption of soft drinks over a two-year period. Exposure to fast food advertising was associated with a 1.1% rise in children's consumption of fast food. Fast food advertising was significantly associated with overweight among children, revealing detectable effects for a vulnerable group of children.
Carter OB et al. (129)	An advertisement's selling and persuasive intent can be recognized by children, but at age 11–12 years only 40% are aware of the persuasive intent. Awareness of persuasive intent emerged slowly as a function of age but even by the oldest age group was only 40%. Vulnerability to TV advertising may persist until children are far older than previously thought.
Dovey TM et al. (130)	Exposure to advertisements for less healthy food increased consumption of foods of all sorts, and exposure to advertisements for healthy foods increased consumption of foods by children who normally avoided unfamiliar foods.
de Droog SM, Valkenburg PM, Buijzen M (131)	Food packaging which displays familiar cartoon characters can increase children's liking of it and their intention to ask for it to be bought, and can be used to encourage the consumption of healthier food.
Lapierre MA, Vaala SE, Linebarger DL (114)	Children aged 5–6 years who saw a popular media character on a cereal box reported liking the cereal more than those who viewed a box with no character on it. Those who were told the cereal was named Healthy Bits liked the taste more than children who were told it was named Sugar Bits. Messages encouraging healthy eating may resonate with young children, but the presence of licensed characters on packaging potentially overrides children's assessments of nutritional merit.
Dixon H et al. (132)	When asked to choose between healthier and less healthy products, 56% of parents of young children did not read a nutrition information panel before making their choice, and were more likely to choose a less healthy product if it included a nutrient claim or sports celebrity endorsement.
Pérez-Salgado D, Rivera-Márquez JA, Ortiz-Hernández L (135)	Analysis of Mexican TV stations in 2007 found that more time was devoted to the advertising of food products during children's TV than during programming targeted at a general audience. The foods more frequently advertised were sweetened beverages, sweets and cereals with added sugar. The two most common marketing strategies were to offer some kind of gift and to link the item to positive emotions.
Jones SC, Kervin L (136)	Children aged 5–12 years are more likely to choose foods if they have seen them advertised in magazines. The majority reported taste and healthiness as the most important factors in snack food choices, but when faced with the actual food choice, they predominantly chose unhealthy foods.
Roberto CA et al. (113)	Children aged 4–6 years who were confronted with identical foods consistently stated that they preferred the taste of those foods that had popular cartoon characters on the packaging. The effect was seen most strongly for energy-dense, nutrient-poor foods.
Brady J et al. (124)	Analysis of the web sites of companies which had signed the United States commitments to restrict advertising to children found that the majority continued to target children below the age of 12 years using free web site membership (63%), leader boards (50%), advergaming (79%) and branded downloadable content (76%) to encourage children's engagement with branded food and beverage promotions.
Jones SC, Reid A (137)	Analysis of children's magazines found a variety of techniques being used to promote food brands, besides direct advertising. Of 444 promotions, 58 were regular food advertisements while over 350 used premiums, vouchers, editorials, puzzles, competitions and non-food promotions with food branding.
Magnus A et al. (138)	Modelling of the cost-effectiveness of interventions to reduce child obesity has shown that removing TV advertising to children for high fat/sugar foods gave a gross cost per disability-adjusted life-year of under AU\$ 4. The intervention would result in both a health gain and a cost offset compared with current practice and would be one of the most cost-effective population-based interventions available to governments today.

Table 5. contd.

Authors	Finding
Walton M, Pearce J, Day P (139)	Schools with a higher percentage of students passing food outlets and outdoor food advertisements reported that these environmental stimuli had an impact on efforts in schools to improve the food environment. Limiting students' exposure to food outlets and outdoor food advertisements by planning travel routes, reducing advertising, or limiting the location of food outlets surrounding schools could be explored as intervention options to support schools in promoting nutrition.
Veerman JL et al. (140)	Modelling methods indicate that as many as one third of overweight and obese children in the United States might not have been obese in the absence of advertising for unhealthy food on TV.
Harris JL, Bargh JA, Brownell KD (141)	Children consumed 45% more snack foods during a TV cartoon programme when it included food advertisements compared with a programme without advertisements. Advertising increased the consumption of products not shown in the advertisements, and the effect was not related to reported hunger. This demonstrated the power of food advertising to prime automatic eating behaviour and thus influence far more than brand preference alone.
Arredondo E et al. (142)	Overweight children (aged 4–8 years) were significantly more likely to recognize fast food restaurant logos than other food logos. Parents' psychosocial and sociodemographic characteristics were associated with the type of food logo recognized by the children. Recognition of fast food restaurant logos may reflect greater exposure to fast food advertisements.
Pemppek TA, Calvert SL (143)	Children aged 9–10 years were influenced by the food messages in online advergames. Healthier foods were consumed more frequently following games in which their characters were rewarded for consuming healthier foods, compared with a game where the character consumed less healthy foods and drinks.
Ali M et al. (144)	Advertisements in online web-pages are recognized by only a proportion of children aged up to 12 years. By age 11–12 years children recognized about three quarters of advertisements.
Romero-Fernández MM, Royo-Bordonada MA, Rodríguez-Artalejo F (103)	Analysis of advertising on Spanish TV found high levels of non-compliance with the Spanish self-regulating code for food advertising aimed at children. Non-compliance was similar for companies that did and did not support the code, casting doubt on its effectiveness and oversight system.
Henry AE, Story M (145)	Of 130 food company web sites, 48% had designated children's areas featuring a variety of marketing techniques including advergames, interactive programs, branded spokes-characters and tie-ins to other products. Of the companies with child-oriented sites, 87% were promoting products of low nutritional quality.
Page RM, Brewster A (146)	Food commercials broadcast during children's TV programming contained depictions of exaggerated pleasure sensation and dependency/addiction, portrayals of physical violence, trickery, thievery/stealing, fighting and taking extreme measures to obtain a food, and treating adults with disrespect. More of these portrayals appeared in commercials for high-sugar cereals than in those for fast-food restaurants.
Jenkin G, Wilson N, Hermanson N (147)	Food advertisements shown during children's TV programmes in New Zealand were analysed for the products' nutrient profiles. Some 66% of advertisements were for HFSS products. The analysis showed that the United Kingdom Ofcom nutrient profiling system was easily applied and could clearly identify HFSS products.

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