

## Conference on 'Translating nutrition: integrating research, practice and policy' Postgraduate Symposium

### Family eating out-of-home: a review of nutrition and health policies

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Childhood obesity is a growing problem worldwide. In recent years, out-of-home (OH) eating has been highlighted as one of the many factors contributing to the obesogenic environment. This review seeks to identify a range of existing guidelines for the provision of healthy food options for families who eat OH frequently. Nationally available nutrition policies were identified using targeted and untargeted searches of the internet to identify established strategies for providing food for children in the family eating out sector in America (US), Australia, Canada and the WHO's European Region (EUR). These were categorised on the basis of eleven pre-defined criteria including: family eating out sector included as stakeholder; inclusion of children's food OH; cost strategies for healthier food choices; provision of nutrition information for customers; nutrition training of catering staff; and monitoring and evaluation structures. Fifty-five policies were reviewed, of which 71% addressed children's food served OH, but principally only for food available in schools. Two voluntary programmes, from Colorado and Slovenia, were identified as possible best practice models as they met a majority of the evaluation criteria. The most frequently used strategy by policies to promote healthier eating OH was the provision of nutrition information on menus, while monitoring and evaluation plans were poorly incorporated into any OH strategies, thus raising issues about their effectiveness. This review has identified a range of initiatives that could be employed to make healthier eating OH more accessible for families. However, to establish best practice guidelines for healthier OH food choices further investigations are required.

#### Policy: Eating out-of-home: Family: Obesity: Children: Catering sector: Nutrition information

Childhood obesity is a growing problem worldwide, not least in the UK and Ireland with approximately a third<sup>(1)</sup> and fifth<sup>(2)</sup>, respectively, of children and adolescents classified as overweight or obese. In recent years, out-of-home (OH) eating has been highlighted as one of the many factors contributing to the obesogenic environment. This is attributed to higher energy and fat intakes, lower micro-nutrient intakes<sup>(3–6)</sup> and weight gain in adults and children<sup>(7–9)</sup>. It is of potential concern that 77% of Irish children (aged 5–12 years) are now eating OH at least once a week<sup>(2)</sup>, with takeaways accounting for approximately half of these eating locations<sup>(10)</sup>. Although, the trends in OH eating are particularly well documented in the US<sup>(3)</sup>, in

the UK and Ireland trends are ambiguous because of lack of a clear definition for OH eating. For example, OH eating has been shown to contribute to 11% of energy intake in the UK<sup>(11)</sup>, but this did not include takeaway foods. On the other hand, in the Republic of Ireland OH eating contributed 24% to total energy intake when restaurants, takeaways, shops and delicatessens were included<sup>(12)</sup>. Food expenditures (adjusted for inflation) in OH have been found to be increasing. In the UK, spending increased by 14% per person per week from 2001 to 2010<sup>(13,14)</sup> and Republic of Ireland household spending on meals OH per week increased by 20% from 1999 to 2010<sup>(15,16)</sup>. Research is also emerging in the US that parents are admitting to be

**Abbreviation:** EUR, WHO's European Region; OH, out-of-home.

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more reliant on fast foods to ensure that their children are provided for<sup>(17–19)</sup>, a trend that could be pertinent to parents in the UK and Ireland.

Consequently, many public health agencies have responded by recommending, and in some cases implementing, guidelines for food served OH in places such as schools, vending machines and public sector canteens. Despite the increasing proportion of daily energy intake consumed in fast food outlets, takeaways and restaurants there are, at present, no guidelines on quality and nutritional value of food served to children in these establishments in the UK and Ireland. The WHO has fully acknowledged the key role of this sector in food provision and has emphasised that governments need to be more proactive in ensuring this sector recognises and acts on its responsibility to make healthier choices available for consumers<sup>(20–22)</sup>. A previous review of OH eating policies in Europe found that a limited number of strategies were outlined in policies relative to the frequency of OH eating<sup>(23)</sup>. This review seeks to identify a range of existing guidelines to provide healthy food options for families who eat OH frequently. For the purpose of this review, all nutrition- and health-related policy documents, strategies or recommendations will be referred to as ‘nutrition policies’.

## Methods

### *Search strategy*

Targeted and untargeted searches of the internet were conducted to identify appropriate national nutrition- and health-related policies for Australia, Canada, the US and the WHO’s European Region (EUR) Member States. The analysis was restricted to the most recent national nutrition policies that were available in English. Only government policies were included; policies from non-government, non-profit or health professional organisations were excluded. Policies for chronic diseases (e.g. CVD or diabetes prevention) were also included if they specifically addressed nutrition objectives. Additional policies referenced in the documents were also sourced and reviewed using the criteria later. The Department of Health (or equivalent) was contacted for each of the countries concerned to identify further appropriate nutrition policies. OH eating was defined as any food, or beverage that has been cooked outside the family home for a family to eat together. This, therefore, incorporates takeaways but not ready meals purchased in a supermarket.

### *Australia*

One appropriate national nutrition policy was found for Australia (Table 1). The Australian Department of Health and Ageing was contacted to identify any further documents that may have been missed in the internet search. No other appropriate documents were included.

### *Canada*

Six relevant national nutrition policies were obtained (Table 1). Health Canada was contacted directly but no

further policies were identified that met the criteria for inclusion.

### *United States*

In the US the inclusion of the catering or OH eating sector in nutrition policies is generally a state-level responsibility. To identify a broader range of strategies in the US, seven states were selected based on their adult obesity rates in 2009<sup>(84)</sup> and geographical location, as childhood obesity rates were not available per state. In ascending order, the obesity rates were: Colorado (19%), California (25%), Washington (26%), North Dakota (28%), North Carolina (29%), Louisiana (33%) and Mississippi (34%). The relevant departments in six out of the seven states (86%) were contacted directly to enquire about any nutrition policies that may have been missed (*n* 4). In total, twenty-two nutrition policies were included in the review for the selected US states (Table 1).

### *WHO’s European Region*

In total, thirty documents were included in the review for the EUR (Table 1). These accounted for twenty-four out of the fifty-three (43%) member states. The relevant departments in eighteen of these twenty-four countries were contacted to establish if there were any nutrition policies that may have been overlooked (*n* 4). Policies were excluded if: they were unavailable in English (*n* 16); they were specifically concerned with promoting physical activity; or if they describe future target areas for policy recommendations, as opposed to current policies in action, for example Ireland’s Obesity: The Policy Challenges<sup>(85)</sup>.

### *Evaluation strategy*

Criteria recommended by the WHO for policy-makers to consider when developing policies were used to categorise and evaluate strategies related to OH eating<sup>(20–22)</sup>:

1. Inclusion of regulations for children’s food served OH.
2. Advertising regulations to restrict the advertisement of certain foods to children.
3. Provision of strategies to reduce the cost of buying healthier foods.
4. Catering sector as stakeholders in development of policy documents.
5. Family eating OH sector as stakeholders in development of policy documents.
6. Inclusion of catering sector in nutrition policies.
7. Inclusion of family eating OH sector in nutrition policies.

Where the family eating OH sector was included in nutrition policies, additional criteria recommended by WHO for healthier eating OH<sup>(20–22)</sup> were used to categorise and evaluate these OH strategies:

- (i) Provision of nutrition information for consumers OH.
- (ii) Training of catering staff in nutrition.
- (iii) Communication and positive marketing strategies to promote healthier choices OH.

- (iv) Monitoring and evaluation structures in place for any strategies implemented OH.

As part of criterion (iv), targeted and untargeted searches of the internet were conducted to identify impact evaluations of the OH strategies used in policies, which were publicly available in English ( $n = 1$ ).

## Results

In general, there was considerable variation between policies with respect to addressing the criteria proposed by the WHO. Tables 2 (seven criteria) and 3 (four criteria) show whether the nutrition policies addressed the criteria per country. Colorado addressed most (ten out of eleven) of the criteria, followed by the Netherlands (eight out of eleven). In contrast, Louisiana addressed the least number of criteria (one out of eleven) in the US and in the EUR almost a third of nutrition policies (27%) did not address any of the criteria. However, the latter policies were focused on preventing under nutrition as opposed to over nutrition.

### *Inclusion of regulations for children's food served out-of-home*

Overall, the majority of the policies (71%) highlighted the importance of healthy food choices for children and included guidelines for children's food OH, albeit this was largely restricted to school food provision. This review focused specifically on the family eating OH environment therefore guidelines for school food provision are not discussed. Generally, policies recommended or stipulated nutrition guidelines for food provided in schools.

### *Advertising regulations to restrict the advertisement of certain foods to children*

Approximately one-fifth of nutrition policies (19%) included recommendations regarding advertising of food to children. Canada's Curbing Childhood Obesity<sup>(25)</sup> recognised that children are particularly vulnerable to advertising of certain foods and beverages, and recommended decreasing children's exposure to inappropriate marketing. However, this national policy, and those in the US and EUR, fell short of providing specific guidelines on what exactly can (or cannot) be advertised, times when inappropriate foods cannot be advertised, or who should monitor advertisements. A pro-active example of advertising regulations was provided in Sweden's Healthy Dietary Habits and Increased Physical Activity<sup>(58)</sup> in which the Swedish Government has banned all TV food advertisements targeted at children. Furthermore, Sweden has recommended that a responsible body be created to monitor advertising and conduct further research in this area. An example of advertising restrictions for the OH eating sector is provided by California<sup>(67)</sup> where it has been advocated that direct promotions to children of foods high in fat and sugar should be stopped, in addition to enticements such as toys. However, no description of what constitutes a high fat and sugar food was provided.

### *Provision of strategies to reduce the cost of buying healthier foods*

Recommendations to reduce the cost of 'healthier foods' featured in only one-fifth of the policies reviewed. One of these, the Pan-Canadian Healthy Living Strategy<sup>(28)</sup> recognised that affordability of healthier food choices is of concern in certain low-income areas of Canada. However, the ultimate responsibility for ensuring the affordability of healthier food rests with individual territories and states; therefore, there are no specific recommendations for how this will be achieved. US policies were more likely to include recommendations for this criterion with over half of the selected states (57%) addressing this issue. The Washington State Nutrition and Physical Activity Plan<sup>(65)</sup> included extensive examples for reducing food costs, and specifically recommended marketing of affordable, healthier food choices in the OH eating sector. California's Obesity Prevention Plan<sup>(67)</sup> had a positive cost strategy for community vending that ensures healthier food options are competitively priced against foods of lower nutritional value. This strategy states that the vending machine must contain 50% of foods meeting the nutrition criteria and the other 50% that do not meet the criteria cannot be priced lower than those that do.

### *Catering and family eating out-of-home sectors as stakeholders in development of policy documents*

Only 10% of the policies included the catering sector as a stakeholder at the development stages of the nutrition policy, and even less (5%) included the family eating OH sector. The Russian Federation and Spain were the only countries in the EUR, and Colorado was the only state in the US, to make this clear in their policies.

### *Inclusion of catering and family out-of-home sector in nutrition policies*

Almost half (44%) of the nutrition policies reviewed advocated that the availability of healthful food choices in worksites and educational institutions should be increased. Other nutrition policies also included food provided by community organisations and the public sector when referring to the catering sector.

The family eating OH sector was included in 41% of the nutrition policies and encompassed a variety of different recommendations to increase the quality of food served OH. For example, Colorado<sup>(64)</sup> and Slovenia<sup>(55)</sup> are trying to improve the quality of food provided OH with voluntary menu labelling initiatives to indicate healthier menu choices. North Carolina recommended that families should prepare and eat more of their meals at home<sup>(74)</sup> and have identified specific goals and timeframes to achieve this. These include reducing by 25% the number of children who eat fast food three or more times per week by 2012<sup>(73)</sup>. However, no specific responsible bodies have been assigned to monitor the progress of the objectives in the policy. Washington aims to increase access to healthier foods OH and has recommended altering recipes to make them lower in energy and fat<sup>(65)</sup>. There are no further

**Table 1.** National policy documents included in review

Country	National policy document	Year	Compiled by
Australia ( <i>n</i> 1)	Eatwell Australia: An Agenda for Action for Public Health Nutrition 2000–2010 <sup>(24)</sup>	2000	Strategic Inter-Governmental Nutrition Alliance of the National Public Health Partnership
Canada ( <i>n</i> 5)	Curbing Childhood Obesity <sup>(25)</sup>	2010	Public Health Agency of Canada
	Eating Well with Canada's Food Guide <sup>(26)</sup>	2007	Health Canada
	Comprehensive School Health in Canada <sup>(27)</sup>	2005	Joint Consortium for School Health
	Pan-Canadian Healthy Living Strategy <sup>(28)</sup>	2005	Intersectoral Healthy Living Network
	Nutrition for Health: An Agenda for Action <sup>(29)</sup>	1996	Health Canada
	Creating a Healthier Canada: Making Prevention a Priority <sup>(30)</sup>	( <i>Not dated</i> )	Ministers of Health and Health Promotion
EUR ( <i>n</i> 30)			
Albania	Analyses of the Situation and National Action Plan on Food and Nutrition for Albania 2003–2008 <sup>(31)</sup>	2003	Ministry of Health
Armenia	Food Security Policy of the Republic of Armenia <sup>(32)</sup>	2005	Ministry of Agriculture
Austria	The Austrian Strategy for Sustainable Development <sup>(33)</sup>	2002	Federal Ministry of Agriculture, Forestry, Environment and Water Management
Belarus	On sanitary and Epidemic Well-being of Population <sup>(34)</sup>	2003	The National Centre of Legal Information of the Republic of Belarus
Belgium	Nationaal Voedings- en Gezondheidsplan voor België 2005–2010 (National Nutrition and Health Plan for Belgium) <sup>(35)</sup>	2006	Federal Public Service of Health, Food Chain Safety and Environment
Bulgaria	National Food and Nutrition Action Plan <sup>(36)</sup>	2005	Ministry of Health
Denmark	National Action Plan Against Obesity: Recommendations and Perspectives Short Version <sup>(37)</sup>	2003	National Board of Health and Centre for Health Promotion and Prevention,
	Healthy Throughout Life- The Targets and Strategies for Public Health Policy of the Government of Denmark 2002–2010 <sup>(38)</sup>	2003	Ministry of the Interior and Health
Estonia	National Strategy for Prevention of Cardiovascular Diseases 2005–2020 <sup>(39)</sup>	2005	Ministry of Social Affairs
Finland	Action Programme for Implementing National Nutrition Recommendations <sup>(40)</sup>	2003	National Nutrition Council
	Government's Resolution on Development Guidelines for Health-Enhancing Physical Activity and Nutrition <sup>(41)</sup>	2008	Ministry of Social Affairs and Health
France	Le deuxieme Programme National Nutrition Sante 2006–2010 (Second National Nutrition and Health Programme) <sup>(42)</sup>	2006	Ministry of Health and Solidarity
Greece	Dietary Guidelines for Adults in Greece <sup>(43)</sup>	2002	Ministry of Health and Welfare
Hungary	National Public Health Programme- Action Plan <sup>(44)</sup>	2004	Ministry of Health, Social and Family Affairs
	Johan Bela'- National Programme for the Decade of Health <sup>(45)</sup>	2003	Ministry of Health, Social and Family Affairs
Iceland	Policy, Vision and Action Plan <sup>(46)</sup>	2007	The Public Health Institute of Iceland
	National Health Plan for the Year 2010 <sup>(47)</sup>	2001	Ministry of Health and Social Security
Ireland	National Health Promotion Strategy <sup>(48)</sup>	2000	Department of Health and Children
Netherlands	Opting for a Healthy Life, Public Health Policy in the Netherlands 2007–2010 <sup>(49)</sup>	2006	Ministry of Health, Welfare and Sport
	Striking the Right Balance-Action Plan of the Covenant on Overweight and Obesity <sup>(50)</sup>	2005	Covenant on Overweight and Obesity
Norway	Recipe for a Healthier Diet. Norwegian Action Plan in Nutrition (2007–2011) <sup>(51)</sup>	2007	Ministry of Health and Care Services
	Prescription for a Healthier Norway: A Broad Policy for Public Health <sup>(52)</sup>	2003	Ministry of Social Affairs
Portugal	National Health Plan 2004–2010: Volume 1 Priorities <sup>(53)</sup>	2004	Ministry of Health and General Directorate of Health
Russian Federation	Guidelines: Healthy Nutrition: Action Plan for Development of Regional Programmes in the Russian Federation <sup>(54)</sup>	2000	National Centre for Preventive Medicine
Slovenia	The National Programme of Food and Nutrition Policy 2005–2010 <sup>(55)</sup>	2005	Ministry of Health

Spain	Spanish Strategy for Nutrition, Physical Activity and Prevention of Obesity (NAOS) <sup>(56,57)</sup>	2005	Ministry of Health Consumer Affairs
Sweden	Summary of Government Assignment Healthy Dietary Habits and Increased Physical Activity- the Basis for an Action Plan <sup>(58)</sup>	2005	National Food Administration and National Institute of Public Health
Switzerland	Actionsante: Eat More Move Better <sup>(59)</sup>	2011	Federal Office of Public Health
UK	Summary: National Programme on Diet and Physical Activity 2008–2012 <sup>(60)</sup>	2008	Federal Office of Public Health
	Choosing a Better Diet: A Food and Health Action Plan <sup>(61)</sup>	2005	Department of Health
US (n 22)			
Colorado	Colorado Physical Activity and Nutrition State Plan <sup>(62)</sup>	2010	Colorado Physical Activity and Nutrition Coalition and Colorado Department of Public Health and Environment
	Inspiring Healthy Eating and Active Living <sup>(63)</sup>	2007	Livewell Colorado
	The Smart Meal Seal Program <sup>(64)</sup>	2010	Colorado Physical Activity and Nutrition Program and Colorado Department of Public Health and Environment
Washington	Washington State Nutrition and Physical Activity Plan Policy and Environmental Approaches <sup>(65)</sup>	2008	Washington State Department of Health
California	Healthy Beverages in Child Care <sup>(66)</sup>	2010	Assembly Bill
	California Obesity Prevention Plan <sup>(67)</sup>	2010	California Department of Public Health and California Obesity Prevention Program
	SB 1420: Provision of Nutritional Information on Specified Food Facilities <sup>(68)</sup>	2008	Senate Bill
	AB 97: Food Facilities Trans Fats <sup>(69)</sup>	2006	Assembly Bill
North Dakota	Taxing Soda to Fund Childhood Obesity Prevention <sup>(70)</sup>	<i>Not yet passed</i>	Senate Bill
	North Dakota Healthy Eating and Physical Activity: A State Plan for Action <sup>(71)</sup>	2008	North Dakota Department of Health
	Local Wellness Policy <sup>(72)</sup>	2006	North Dakota Department of Public Instruction
North Carolina	Eat Smart Move More: North Carolina's Plan to Prevent Overweight, Obesity and Related Chronic Diseases <sup>(73)</sup>	2006	Caldwell D, Dunn C, Keene A <i>et al.</i>
	Prepare and Eat More Foods at Home <sup>(74)</sup>	2008	
Louisiana	North Carolina's Eat Smart Standards for All Foods Available in School <sup>(75)</sup>	2005	Dunn C, Caldwell D, Hoggard L, Thaxton S, Thomas C, Andersen K, Kolasa K
	School Wellness Policy Action Plan Guide <sup>(76)</sup>	2009	Louisiana Council on Obesity Prevention and Management, Department of Health and Hospitals' Nutrition Services, Department of Education, Louisiana State University Agricultural Centre and the Governor's Office.
	Preventing Childhood Obesity: A School Health Policy Guide <sup>(77)</sup>	2009	Centre for Safe and Healthy Schools
Mississippi	Strategic Plan 2007–2010 <sup>(78)</sup>	2007	
	Wellness Policy Template <sup>(79)</sup>	2006	State of Louisiana Department of Education
	An Environmental Scan of Childhood Obesity Efforts in Mississippi <sup>(80)</sup>	2007	Mississippi State Department of Health, State of Mississippi and Mississippi Department of Education
	Mississippi Healthy Students Act <sup>(81)</sup>	2007	Senate Bill
Mississippi	Mississippi State Health Plan <sup>(82)</sup>	2007	Mississippi Department of Health
	Mississippi State Plan for Heart Disease and Stroke Prevention and Control 2004–2013 <sup>(83)</sup>	2004	Mississippi State Department of Health, Mississippi Chronic Illness Coalition-CVD Advisory Committee and Mississippi Task Force on Heart Disease and Stroke Prevention

EUR, WHO's European Region.

**Table 2.** Assessment of nutrition policies using WHO criteria\* for out-of-home eating

		1	2	3	4	5	6	7	Total
		Include children's food OH	Advertising regulations for children	Cost strategies for healthier foods	Catering sector as stakeholder	Family eating out as stakeholder	Includes catering sector in policy	Includes family eating OH in policy	criteria met (n/7 (%))
Australia		Yes	No	Yes	No	No	No	Yes	3 (43)
	<i>Sub-total (n/1)</i>	1	0	1	0	0	0	1	
Canada		Yes	Yes	Yes	Yes	No	Yes	Yes	6 (86)
	<i>Sub-total (n/1)</i>	1	1	1	1	0	1	1	
EUR	Albania	No	No	No	No	No	No	No	0
	Armenia	No	No	No	No	No	No	No	0
	Austria	No	No	No	No	No	No	No	0
	Belarus	No	No	No	No	No	No	No	0
	Belgium	Yes	Yes	No	No	No	Yes	Yes	4 (57)
	Bulgaria	Yes	No	No	No	No	Yes	No	2 (29)
	Denmark	Yes	Yes	No	No	No	Yes	No	3 (43)
	Estonia	Yes	No	No	No	No	Yes	No	2 (29)
	Finland	Yes	No	Yes	No	No	Yes	Yes	4 (57)
	France	Yes	Yes	No	Yes	No	Yes	Yes	5 (71)
	Georgia	No	No	No	No	No	No	No	0
	Greece	No	No	No	No	No	No	No	0
	Hungary	Yes	No	No	No	No	Yes	Yes	3 (43)
	Iceland	Yes	No	Yes	No	No	Yes	Yes	4 (57)
	Ireland	No	No	No	No	No	No	No	0
	Netherlands	Yes	Yes	Yes	Yes	No	Yes	Yes	6 (86)
	Norway	Yes	No	Yes	No	No	Yes	Yes	4 (57)
	Portugal	No	No	No	No	No	No	No	0
	Russian Fed.	No	No	No	Yes	Yes	Yes	Yes	4 (57)
	Slovenia	Yes	No	No	No	No	Yes	Yes	3 (43)
	Spain	Yes	Yes	No	Yes	Yes	Yes	Yes	6 (86)
	Sweden	Yes	Yes	No	No	No	Yes	Yes	4 (57)
	Switzerland	Yes	Yes	No	No	No	No	No	2 (29)
	UK	Yes	Yes	No	No	No	Yes	No	3 (43)
	<i>Sub-total (n/24 (%))</i>	15 (63)	8 (33)	4 (17)	4 (17)	2 (8)	15 (63)	11 (46)	
US	Colorado	Yes	Yes	No	Yes	Yes	Yes	Yes	6 (86)
	Washington	Yes	No	Yes	No	No	Yes	Yes	4 (57)
	California	Yes	Yes	Yes	No	No	Yes	Yes	5 (71)
	North Dakota	Yes	No	Yes	No	No	No	No	2 (29)
	North Carolina	Yes	No	Yes	No	No	Yes	Yes	4 (57)
	Louisiana	Yes	No	No	No	No	No	No	1 (14)
	Mississippi	Yes	No	No	No	No	Yes	Yes	3 (43)
	<i>Sub-total (n/7(%))</i>	7 (100)	2 (29)	4 (57)	1 (14)	1 (14)	5 (71)	5 (71)	
	<b>TOTAL (n/33 countries (%))</b>	<b>24 (73)</b>	<b>11 (33)</b>	<b>10 (30)</b>	<b>6 (18)</b>	<b>3 (9)</b>	<b>21 (64)</b>	<b>18 (55)</b>	

OH, out-of-home; EUR, WHO's European Region.

\*Global Strategy on Diet, Physical Activity and Health. Resolution of the Fifty-seventh World Health Assembly (2004)<sup>(20)</sup>; Proposed Second WHO European Action Plan for Food and Nutrition Policy 2007–2012 (2007)<sup>(21)</sup>; Factsheet: Second WHO European action plan for food and nutrition policy: tackling non-communicable and acute diseases (2007)<sup>(22)</sup>.

**Table 3.** Further assessment of nutrition policies that included the out-of-home eating sector using WHO criteria\* specifically for healthier out-of-home eating

	(i) Provision of nutrition information OH	(ii) Training of staff in nutrition OH	(iii) Communication strategies OH	(iv) Monitoring and evaluation structures OH	Total criteria met (n/4 (%))
Australia	No	No	No	No	0
Sub-total (n/1)	0	0	0	0	
Canada	No	No	No	No	0
Sub-total (n/1)	0	0	0	0	
EUR					
Belgium	Yes	Yes	No	No	2 (50)
Finland	Yes	Yes	Yes	No	3 (75)
France	Yes	No	No	No	1 (25)
Hungary	Yes	Yes	Yes	No	3 (75)
Iceland	No	No	No	No	0
Netherlands	No	Yes	Yes	No	2 (50)
Norway	No	No	No	No	0
Russian Fed.	No	No	Yes	No	1 (25)
Slovenia	Yes	Yes	No	Yes	3 (75)
Spain	Yes	No	No	No	1 (25)
Sweden	Yes	Yes	Yes	No	3 (75)
Sub-total (n/11(%))	7 (64)	6 (55)	5 (45)	1 (9)	
US					
Colorado	Yes	Yes	Yes	Yes	4 (100)
Washington	No	No	Yes	No	1 (25)
California	Yes	No	Yes	No	2 (50)
North Carolina	No	No	No	No	0
Mississippi	No	No	Yes	No	2 (50)
Sub-total (n/5(%))	2 (40)	1 (20)	4 (80)	1 (20)	
TOTAL (n/18 countries (%))	9 (50)	7 (39)	9 (50)	2 (11)	

OH, out-of-home; EUR, WHO's European Region.

\*Global Strategy on Diet, Physical Activity and Health. Resolution of the Fifty-seventh World Health Assembly (2004)<sup>(20)</sup>; Proposed Second WHO European Action Plan for Food and Nutrition Policy 2007–2012 (2007)<sup>(21)</sup>; Factsheet: Second WHO European action plan for food and nutrition policy: tackling non-communicable and acute diseases (2007)<sup>(22)</sup>.

details about whether caterers will be provided with guidance on how to alter recipes, specific timeframes for achieving their goal and if anyone will monitor the recipes or their impact. California not only provided recommendations and guidelines for healthier lifestyles but also made it mandatory to ensure these objectives are met. For example, the use of *trans* fats in prepared foods has been banned since 2006<sup>(69)</sup> and from 2009, large chain restaurants were to display energy information on menus<sup>(68)</sup>.

#### *Further review of the nutrition policies that did include the family eating out-of-home sector (n 24)*

*Provision of nutrition information for consumers out-of-home.* In terms of policies that included the family eating OH sector, half of these specified that the provision of nutrition information is essential for informing consumers when purchasing OH food, making this the most frequently used type of strategy to improve OH food. However, there is no consensus as to how this information should be conveyed to the consumer. Various states in the US had legislated nutrition labelling of menus in diverse formats but these have been pre-empted by changes to the Health Reform Law requiring nationally that all chain restaurants with twenty or more establishments display energy information on menus<sup>(86)</sup>. Other examples include voluntary approaches such as Slovenia's National Programme of Food and Nutrition Policy 2005–2010<sup>(55)</sup>

and Colorado's Smart Meal Seal<sup>(64)</sup> that use a symbol to highlight healthier food options. The symbol on a menu indicates food choices that meet specific nutrition criteria. Spain<sup>(56,57)</sup> has advised that nutrition information for menu options should be made available for consumers who request it, therefore requiring caterers to work out this information but not to display it on menus. Belgium<sup>(35)</sup> and Canada<sup>(29)</sup> only encourage establishments to be more transparent; however, they do not state specifically what this information should be or who provides it and where it should be presented. On the other hand, both these countries recognise that consumers need to be educated on how to interpret nutrition information in order for it to make an impact on food choices.

*Training of catering staff in nutrition.* Twenty-nine percent of nutrition policies recommended that catering staff should have training in nutrition. It is interesting to note that the EUR policies were more likely to recommend this (50%) compared with the other countries (Australia: 0%; Canada: 0%; US: 11%), by advocating that the catering staff be trained either at the beginning of, or during their career, to ensure they have adequate expertise to plan and cook nutritious meals. Slovenia had the most detailed specification for this criterion and recommended that nutrition and health should be incorporated in the curriculum of all catering courses<sup>(55)</sup> and an education programme for 'nutrition advisors' would be developed. Colorado was the only US state that stipulated nutrition

training would be provided to catering establishment managers through their Smart Meal Seal<sup>(64)</sup> initiative so that they could create meals that would meet the nutrition guidelines. Slovenia and Colorado are advocating the most comprehensive voluntary initiatives OH in this review and are following this up by ensuring caterers have the ability to participate.

*Communication and positive marketing strategies to promote healthier choices out-of-home.* Over a third (38%) of nutrition policies emphasised that effective communication strategies should be employed to promote the sale of healthier food choices. The US policies were more likely (56%) to advocate this approach compared with Australia (0%), Canada (0%) or the EUR (25%). Washington's Nutrition and Physical Activity Plan<sup>(65)</sup> reported it would support existing activities that market healthier food choices when eating OH as it encourages consumers to choose these options. Colorado's Smart Meal Seal<sup>(64)</sup> developed a symbol for establishments to place on any advertisements or literature to promote their taking part in the programme. Mississippi's State Plan for Heart Disease and Stroke Prevention and Control<sup>(83)</sup> advised that it would use the media to promote their heart healthy food choices campaign in the catering sector.

*Monitoring and evaluation structures in place for any strategies implemented.* Only one-fifth of policies (21%) specified the inclusion of formal monitoring and evaluation structures for OH eating initiatives to assess their effectiveness and efficiency. For example, Colorado's Smart Meal Seal<sup>(64)</sup> stated that by participating, the restaurants agree to monitor their sales to allow for continuous evaluation and effectiveness. Slovenia was the only country in the EUR to assign a monitoring and evaluation goal to their nutrition labelling of menus initiative and reported it would continuously monitor the quality of food served by participating establishments<sup>(55)</sup>. No other policies specifically reported how their OH strategies would be monitored and evaluated. Furthermore, only one publicly available evaluation for OH strategies was identified and this was for Colorado's Smart Meal Seal<sup>(64)</sup>. It demonstrated that over a 12-month period sales of meals meeting the Smart Meal Seal criteria increased while sales of side orders decreased.

## Discussion

Overall, the majority of nutrition policies reviewed met relatively few of the WHO criteria for OH eating. California and Colorado had particularly comprehensive and assertive policies as they met most of the criteria in the US by providing specific, detailed standards and in some cases legislation, to create OH food environments that facilitate healthy eating choices. Coincidentally, the adult obesity rates in these two states are consistently among the lowest in the US<sup>(84)</sup>. Policies that met a few of the criteria were presented in more general terms and failed to identify specific target areas and action plans for improving OH food. This supports previous research in Europe that the nutrition policies generally lack the details required to implement the recommendations<sup>(87)</sup>.

The guidelines for school food provision were the most comprehensively covered aspects of OH eating for children in the majority of policies reviewed. Short-term evaluations have demonstrated that school meal policies have improved dietary intakes in the school setting<sup>(88)</sup>. However, long-term impact and process evaluations of their effect on children's overall diet quality have yet to be published. It has been argued that strict guidelines such as those in schools remove freedom of choice and this may often be the key factor preventing the policy-makers from implementing strategies to change the wider food environment. However, school food policies are designed to reduce the environmental factors that influence individuals to increase their energy intake<sup>(89,90)</sup>. For example, ensuring school food meets the recommended nutrition guidelines or restricted access to energy dense, nutrient poor foods, protects children from the relentless pressure to eat foods of lower nutritional value. Moreover, in light of the positive effect school meal standards are having on dietary intakes in schools, other OH environments could also benefit from similar standards.

In contrast, the nutrition policies failed to clearly address the family eating OH sector, which is significant given the evidence of the increasing contribution of OH food to energy intake. This review and another review of European nutrition policies<sup>(91)</sup> have found measures most frequently used by policies are those that allow consumers to make more informed choices. Apart from school food policies, strategies to improve the OH food environment are not nearly as well articulated or advocated. Greater pressure and advocacy from the relevant stakeholders is clearly required to incorporate this sector on government health agendas and consequently policies. When the family eating OH sector was included in the policies, a variety of approaches have been identified to improve the quality of food. The evaluation criteria identified two voluntary initiatives that could be considered as models of best practice: Colorado's Smart Meal Seal<sup>(64)</sup> and Slovenia's Health Beneficial Food<sup>(55)</sup>. In particular, Colorado's Smart Meal Seal<sup>(64)</sup> is a comprehensive programme designed in partnership with the Colorado Restaurant Association and owners of large and small restaurants. It addresses menu labelling, staff training, communication strategies and monitoring and evaluation structures, thus ensuring that those worthy of the membership meet the highest standards, without legislating all businesses to do the same. Evaluations of the programme have found that sales of healthier menu options increased, while sales of side orders such as fries, soft drinks and desserts decreased<sup>(92)</sup>. Creating national or international nutrition legislation for the entire catering sector will ensure that standards are met OH, but will inevitably incur a financial burden for businesses and possible controversy. An effective voluntary initiative similar to Colorado's<sup>(64)</sup> or Slovenia's<sup>(55)</sup> might prove more economically acceptable to businesses while still improving the healthfulness of menus.

Stakeholder engagement is pivotal in the successful implementation of any nutrition policy<sup>(20-22)</sup>, but few policies emphasised this. Stakeholders cannot be held accountable when they have not been involved in developing action plans for improving the quality of OH



food, which clearly diminishes the effect of any existing strategies. By engaging all the stakeholders from the outset, all those involved understand their roles and could improve their contribution to the overall goal. For the future success of strategies targeting family eating OH, the wide range of stakeholders involved need to be identified so they can be included in the early stages of policy development.

For the majority of nutrition policies reviewed, it is difficult to establish best practice guidelines as few have conducted formal monitoring and evaluation of their action plans. Furthermore, it is of concern that monitoring and evaluation plans have not been incorporated in the majority of OH strategies in the policies reviewed and raises issues as to whether the strategies will be implemented, or if they are implemented, are they effective? The WHO clearly advocate the importance of evaluating policies<sup>(20–22)</sup> to assess their impact and provide an evidence base for future action plans and improvements. More policies included recommendations, and in some cases guidelines, for monitoring and evaluation strategies for policy documents as a whole. However, it is important to identify if each individual strategy is effective in contributing to the overall goal before evaluation of the entire policy can be made. Only one publicly available OH evaluation was found and this was for Colorado<sup>(64)</sup>. This evaluation utilised a cost effective method of monitoring by specifying restaurants record their own sales for programme coordinators to make evaluations. The paucity of published impact evaluations on OH strategies does not permit the required identification of best practice models. To address this, the policy-makers should consider WHO recommendations<sup>(20–22)</sup> and the recently detailed questions by Tannahill and Sridharan<sup>(93)</sup> to establish the most appropriate and effective strategies for encouraging healthier food choices OH.

In the stages before monitoring and evaluation, it is essential that the catering staff receive adequate training on how to implement any strategy into the family eating OH environment. All the caterers' initial training should allow them to create healthy, cost effective menus that are appealing to consumers, while also providing them with the knowledge to explain to consumers why they are healthy. The HECTOR project in Europe identified an important barrier from caterers in that they believe their employees lack the ability to provide healthier options due to having a low-skilled workforce<sup>(94)</sup>. Nutrition policies are therefore not fulfilling caterers' needs with only a third deeming this important to address. Furthermore, caterers are concerned money will be wasted paying for staff training due to the normally high turnover of employees<sup>(94)</sup>. Slovenia's education plan overcomes this by training all caterers on nutrition and health at the beginning of their careers<sup>(55)</sup>. In order for consumers to increase the number of healthier foods they purchase OH, caterers need to have the ability to create healthier options that appeal to consumer's tastes more than foods of lower nutritional value<sup>(95)</sup>.

One of the strategies caterers particularly require training for is the provision of nutrition information for consumers OH. Nutrition information OH allows consumers to

make a more informed dietary choice and is a strategy highlighted in half the policies targeting the OH eating sector, making it the most frequently used strategy for promoting healthier food options OH. While it is imperative that consumers have the necessary information to make informed decisions when eating OH, research on the influence of menu labelling has found that any beneficial effect is limited<sup>(96–98)</sup>. The Swartz *et al.*<sup>(97)</sup> review on the effect of menu labelling recommended that caterers' response to menu labelling regulations should be monitored. A 2-year study in New York City found that some restaurants introduced new menu items with lower energy contents following mandating of energy labelling and in these establishments consumers' purchases decreased in energy content; however, this was not a main outcome measure of this study<sup>(99)</sup>. To our knowledge only one investigation has been conducted to monitor caterers' responses to menu labelling standards. This study was conducted in Washington to identify if caterers' positively alter their recipes or menus in light of standards to post energies on menus. It found that although OH food still remains excessive in energy, fat and Na, modest improvements were seen 18 months post implementation of menu labelling regulations<sup>(100)</sup>. Future evaluations may also consider responses that the consumer might make as a result of nutrition information, such as compensatory food choices at the dining occasion or in subsequent meals<sup>(91)</sup>.

A variety of formats have been identified from the nutrition policies for how to convey nutrition information to consumers. California<sup>(68)</sup> was the first state in the US to make energy labelling on menus mandatory and now all chain restaurants in the US are required by law to provide energy information on menus<sup>(86)</sup>. Colorado's<sup>(64)</sup> and Slovenia's<sup>(55)</sup> programmes employ a symbol to inform consumers which menu items are healthier without displaying the often confusing nutrition breakdown. US children have been found to make positive food choice decisions when menus displayed a healthy symbol beside appropriate options<sup>(101)</sup>, while actual energy and fat information did not influence their choice<sup>(101,102)</sup>. Holmes *et al.*<sup>(103)</sup> were the first to investigate the effect of different forms of menu labelling on children's food choices in the actual restaurant setting. They found that there was no significant effect of any of the formats of menu labelling on energy and fat purchased, compared with the control menu<sup>(103)</sup>. More work is therefore required to identify the most effective format for presenting nutrition information to families. Although not reviewed here, as the relevant policies were not available in English, Scandinavian countries have also employed a consistent symbol on menus to indicate healthier options. In the UK and Ireland, government policies did not specifically address providing nutrition information, but both countries are working to encourage establishments to provide this information voluntarily through their Food Standards Agency<sup>(104,105)</sup> and Food Safety Authority<sup>(106)</sup>. The Food Safety Authority in Ireland conducted a national consultation on displaying energies on menus and found that although the majority of consumers would like to see energies on menus in all or some establishments, only half of food service businesses were in favour<sup>(107)</sup>. This consultation found that food

businesses in Ireland were concerned about menu labelling being implemented as they believed calculating energies would be difficult and expensive<sup>(107)</sup>. The policy-makers, therefore, need to be cognisant of the need to convey nutrition information in an effective way for consumers, but of equal importance is the need to help caterers overcome any obstacles, real or apparent, in implementation of any guidelines. Further investigations are required to establish the most effective way of presenting nutrition information for consumers and mandating this in unambiguous guidelines that caterers support.

Associated with the provision of nutrition information at the point-of-choice, there are a number of potentially useful communication strategies that could be employed to promote the uptake of healthier options OH. These can include methods of educating consumers on healthier foods OH or incorporating healthy messages in OH marketing strategies. It is more likely that consumers can be encouraged to choose healthier options when eating OH not only if they are convenient and enjoyable but also if they know why they are healthy<sup>(108)</sup>. Strategies such as using the media to communicate healthy messages to consumers and education campaigns have been widely highlighted by nutrition policies. However, education strategies specifically for the OH environment were less widespread with caterers encouraged to conduct in-house promotions. These included providing healthy meal deals or highlighting healthier menu options in marketing materials. The most comprehensive approach to this criterion is Colorado's Smart Meal Seal<sup>(64)</sup> programme where restaurants are provided with promotional materials to market their participation in the programme which helps to educate and raise awareness of healthier food options OH. Marketing strategies currently employed by companies for foods of lower nutritional value could be used to promote the sale of healthier menu items, for example free toys, while also educating consumers on why they are healthy. However, it is important in any country to empirically define healthy food options for both caterers and consumers to promote trust and avoid confusion.

While marketing strategies can be used to promote healthier dietary choices, advertising can also have detrimental effects on children's food choices<sup>(109,110)</sup>. Research in this area has already recommended the policy-makers mandate advertising restrictions to reduce its negative effect on children's food choices<sup>(23)</sup>. The policy-makers should be confident in the need for advertising restrictions, particularly towards children, and it is of concern why few policies referred to this issue, and then only briefly. Policies that did indicate intentions to restrict advertising did not elaborate on how this might be achieved, while others simply advocated self-regulation, which has been found to be ineffective<sup>(111)</sup>. Policies need to consider nutrient profiling of inappropriate foods, extending the restrictions beyond television and ensuring independent monitoring of advertisements. Monitoring should not only consider exposure to advertisements, which they often do, but also its effect, particularly on children's and adolescent's food choice behaviour. Although not a direct policy in action, Ireland's Taskforce on Obesity has identified key areas that should be targeted by future

policies<sup>(85)</sup>. This includes advertising restrictions, and a relevant document has recently been released for consultation<sup>(112)</sup>. Ireland have therefore considered comprehensively appropriate target areas and these have been prioritised for implementation with restricting advertising aimed at children being one of the first key areas to be targeted. In the future, policy-makers need to extend their focus on children to also include adolescents as they too are especially vulnerable to some forms of marketing techniques, and restrictions should be extended to new landscapes such as the internet and mobile phones<sup>(113)</sup>.

Cost remains a key criterion for food selection in many families<sup>(114,115)</sup> and any efforts to improve the nutrition quality of OH eating must always be cognisant of that fact. Many of the cost strategies identified in policies were aimed at healthy vending in the US and few were specifically for food available in family catering establishments. The HECTOR project in Europe has found caterers believe competitively priced healthier menu options would not be cost effective for business<sup>(94)</sup>, thus many may be reluctant to try healthier food options on menus. For many establishments, however, small changes could still prove effective, for example smaller portion sizes or changing the cooking method of their ingredients. Strategies that involve working with caterers to improve recipes and cooking methods could provide an excellent start to providing healthier food choices. Future work should involve collaborating with chefs to develop innovative ways for caterers to provide healthier food options that are both competitively priced and appealing to consumers.

The results of this review should be interpreted with care as only national policies were included and any local or non-government strategies were not reviewed. Only policies available in English were included and in some cases only summary documents were available in English. Furthermore, some nutrition policies may appear to have addressed a few of the key criteria adequately as they have been written for public information and not for implementation purposes. However, it should also be noted that these policy documents are accessible to stakeholders who may be wishing to identify their key roles and responsibilities. In addition, whether the policy documents were implemented was not included in the review. The review focused on family eating OH, therefore any reference to policy quality has been based on this and not the quality of the policy document as a whole.

## Conclusion

The family eating OH environment needs both more support, and has to be more supportive, for making healthier food choices. To achieve this, public health professionals need to engage more with all stakeholders in the OH eating sector to participate in healthful actions that consumers will readily avail of. This review has identified a range of initiatives that could be employed to make healthier eating OH more accessible. However, despite the increasing emphasis placed on the importance of evaluation, there is little known on the effectiveness of any of these initiatives on family food choice behaviour. Evaluations have been

more or less neglected from the OH policies presented here in regard to OH food, with the exception of Colorado's Smart Meal Seal<sup>(64)</sup>. If evaluations are to be effectively conducted, monitoring and evaluation plans need to be incorporated into the overall action plan from the outset. To establish best practice guidelines for healthier OH food choices that resonate with both public health professionals and food businesses, further investigations are required, particularly in the UK and Ireland.

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### References

- Bridges S & Thompson J (2011) *HSE 2010 Chapter 11: Children's BMI, Overweight and Obesity*. London: The Health and Social Care Information Centre.
- Irish Universities Nutrition Alliance (2005) *The National Children's Food Survey*. Dublin: IUNA.
- Kant AK & Graubard BI (2004) Eating out in America, 1987–2000: trends and nutritional correlates. *Prev Med* **38**, 243–249.
- O'Dwyer N, McCarthy S, Burke S *et al.* (2005) The temporal pattern of the contribution of fat to energy and of food groups to fat at various eating locations: implications for developing food-based dietary guidelines. *Public Health Nutr* **8**, 249–257.
- Orfanos P, Naska A, Trichopoulou A *et al.* (2009) Eating out of home: energy, macro- and micronutrient intakes in 10 European countries. The European Prospective Investigation into Cancer and Nutrition. *Eur J Clin Nutr* **63** Suppl. 4, S239–S262.
- Lachat C, Nago E, Verstraeten R *et al.* (2012) Eating out of home and its association with dietary intake: a systematic review of the evidence. *Obes Rev* **13**, 329–346.
- Rosenheck R (2008) Fast food consumption and increased caloric intake: a systematic review of a trajectory towards weight gain and obesity risk. *Obes Rev* **9**, 535–547.
- Fulkerson JA, Farbaksh K, Lytle L *et al.* (2011) Away-from-home family dinner sources and associations with weight status, body composition, and related biomarkers of chronic disease among adolescents and their parents. *J Am Diet Assoc* **111**, 1892–1897.
- Bezerra IN, Curioni C & Sichieri R (2012) Association between eating out of home and body weight. *Nutr Rev* **70**, 65–79.
- Burke S, McCarthy S, O'Neill J *et al.* (2007) An examination of the influence of eating location on the diets of Irish children. *Public Health Nutr* **10**, 599–607.
- Department for Environment Food and Rural Affairs (2010) *Family Food: A report on the 2009 Family Food Module of the Living Costs and Food Survey*, February 2011 ed., [Food Statistics Unit, editor]. London: Department for Environment Food and Rural Affairs.
- Irish Universities Nutrition Alliance (2011) *National Adult Nutrition Survey Summary Report*. Dublin.
- Department for Environment Food and Rural Affairs (2005) *Family Food: A Report on the 2003–04 Expenditure and Food Survey*. London: TSO.
- Department for Environment Food and Rural Affairs (2011) *Family Food 2010*. London: TSO.
- Central Statistics Office (2001) *Household Budget Survey 1999/2000*. Dublin: CSO.
- Central Statistics Office (2012) *Household Budget Survey 2009/2010*. Dublin: CSO.
- Jabs J & Devine CM (2006) Time scarcity and food choices: an overview. *Appetite* **47**, 196–204.
- Jabs J, Devine CM, Bisogni CA *et al.* (2007) Trying to find the quickest way: employed mothers' constructions of time for food. *J Nutr Educ Behav* **39**, 18–25.
- Devine CM, Farrell TJ, Blake CE *et al.* (2009) Work conditions and the food choice coping strategies of employed parents. *J Nutr Educ Behav* **41**, 365–370.
- World Health Organisation (2004) *Global Strategy on Diet, Physical Activity and Health. Resolution of the Fifty-seventh World Health Assembly WHA57.17*. Geneva: WHO.
- World Health Organisation (2007) *Proposed Second WHO European Action Plan for Food and Nutrition Policy 2007–2012*. Copenhagen: WHO.
- World Health Organisation (2007) *Factsheet: Second WHO European Action Plan for Food and Nutrition Policy: Tackling Noncommunicable and Acute Diseases*. Copenhagen: WHO.
- Lachat C, Roberfroid D, Huybregts L *et al.* (2009) Incorporating the catering sector in nutrition policies of WHO European Region: is there a good recipe? *Public Health Nutr* **12**, 316–324.
- Strategic Inter-Governmental Nutrition Alliance of the National Public Health Partnership (2001) *Eat Well Australia: An Agenda for Action for Public Health Nutrition*, pp. 1–136 [NPH Partnership, editor]. Melbourne: National Public Health Partnership.
- Public Health Agency of Canada (2010) *Curbing Childhood Obesity*. Canada: Public Health Agency of Canada.
- Health Canada (2007) *Eating well with Canada's Food Guide*. Canada: Minister of Health Canada.
- Joint Consortium for School Health (2005) *Comprehensive School Health in Canada*. Canada: Joint Consortium for School Health.
- Intersectoral Healthy Living Network (editor) (2005) *The Integrated Pan-Canadian Healthy Living Strategy*. Canada: Minister of Health.
- Health Canada (1996) Nutrition for Health: An Agenda for Action. [http://www.hc-sc.gc.ca/fn-an/nutrition/pol/nutrition\\_health\\_agenda-nutrition\\_virage\\_sante-eng.php](http://www.hc-sc.gc.ca/fn-an/nutrition/pol/nutrition_health_agenda-nutrition_virage_sante-eng.php) (accessed 1 May 2011.)
- Ministers of Health and Health Promotion (not dated) *Creating a Healthier Canada: Making Prevention a Priority*. Canada: Ministers of Health and Health Promotion.
- Ministry of Health (2003) *Analyses of the Situation and National Action Plan on Food and Nutrition for Albania 2003–2008*. Albania: Ministry of Health Directory of Primary Health Care.

32. Ministry of Agriculture (2005) *Food Security Policy of the Republic of Armenia*. Armenia: Ministry of Agriculture.
33. Martinuzzi A & Steurer R (2003) The Austrian strategy for sustainable development: process review and policy analysis. *Eur Environ* **13**, 269–287.
34. The National Centre of Legal Information of the Republic of Belarus (2003) On Sanitary and Epidemic Well-Being of Population. [http://www.vertic.org/media/National%20Legislation/Belarus/BY\\_Law\\_on\\_Sanitary\\_and\\_Epidemic\\_Well-Being\\_of\\_Population.pdf](http://www.vertic.org/media/National%20Legislation/Belarus/BY_Law_on_Sanitary_and_Epidemic_Well-Being_of_Population.pdf) (accessed 1 November 2010.)
35. Federal Public Service of Health Food Chain Safety and Environment (2006) *Nationaal Voedings- en Gezondheidsplan voor België 2005–2010 (National Nutrition & Health plan for Belgium)*. Belgium: Minister for Social Affairs and Public Health.
36. Ministry of Health (2005) *National Food and Nutrition Action Plan*. Bulgaria: Ministry of health.
37. National Board of Health and Centre for Health Promotion and Prevention (2003) *National Action Plan Against Obesity: Recommendations and Perspectives Short Version*. Copenhagen: National Board of Health, Centre for Health Promotion and Prevention.
38. Ministry of the Interior and Health (2003) *Healthy Throughout life- the Targets and Strategies for Public Health Policy of the Government of Denmark 2002–2010*. Copenhagen: Ministry of the Interior and Health.
39. Ministry of Social Affairs (2005) *National Strategy for Prevention of Cardiovascular Diseases 2005–2020*. Estonia: Ministry of Social Affairs.
40. National Nutrition Council (2003) Summary of the Action Programme for Implementing National Nutrition Recommendations. [http://wwwb.mmm.fi/ravitsemusneuvottelukunta/Toim\\_ohj\\_ENG.htm](http://wwwb.mmm.fi/ravitsemusneuvottelukunta/Toim_ohj_ENG.htm) (accessed 1 October 2010).
41. Ministry of Social Affairs and Health (2008) *Government's Resolution on Development Guidelines for Health-Enhancing Physical Activity and Nutrition*. Helsinki: Ministry of Social Affairs and Health.
42. Ministry of Health and Solidarity (2006) *Le Deuxieme Programme National Nutrition Sante 2006–2010 (Second National Nutrition and Health Programme)*. France: Ministry of Health and Solidarity.
43. Ministry of Health and Welfare (1999) *Dietary Guidelines for Adults in Greece*. Greece: Supreme Scientific Health Council.
44. Ministry of Health Social and Family Affairs (2004) *National Public Health Programme- Action Plan*. Budapest: Ministry of Health, Social and Family Affairs.
45. Ministry of Health Social and Family Affairs (2003) *Johan Bela'- National Programme for the Decade of Health*. Budapest: Ministry of Health, Social and Family Affairs.
46. The Public Health Institute of Iceland (2007) *Policy, Vision and Action Plan*. Reykjavik: The Public Health Institute of Iceland.
47. Ministry of Health and Social Security (2001) *National Health Plan to the Year 2010*. Reykjavik: Ministry of Health and Social Security.
48. Department of Health and Children (2000) *National Health Promotion Strategy*. Ireland: Department of Health and Children.
49. Ministry of Health WaS (2006) *Opting for a Healthy Life, Public Health Policy in the Netherlands 2007–2010*. The Hague: Ministry of Health, Welfare and Sport.
50. Covenant on Overweight and Obesity (2005) *Striking the Right Energy Balance*. The Hague: Ministry of Health, Welfare and Sport.
51. Ministry of Health and Care Services (2007) *Recipe for a healthier diet. Norwegian Action Plan in Nutrition (2007–2011)*. Oslo: Ministry of Health and Care Services.
52. Ministry of Social Affairs (2003) *Prescription for a Healthier Norway: A Broad Policy for Public Health*. Norway: Ministry of Social Affairs.
53. Ministry of Health and General Directorate of Health (2004) *National Health Plan 2004–2010: Volume 1 Priorities*. Lisbon: Ministry of Health and General Directorate of Health.
54. National Centre for Preventive Medicine (2000) *Guidelines: Healthy Nutrition: Action Plan for Development of Regional Programmes in the Russian Federation*. Copenhagen: National Centre for Preventive Medicine.
55. Ministry of Health (2005) *The National Programme of Food and Nutrition Policy 2005–2010*. Ljubljana: Ministry of Health.
56. Bevins F (2005) Nutrition, Physical Activity, Obesity Prevention. <http://www.hpm.org/survey/es/b6/2> (accessed 1 December 2010).
57. Neira M & de Onis M (2006) The Spanish strategy for nutrition, physical activity and the prevention of obesity. *Br J Nutr* **96**, S8–S11.
58. National Institute of Public Health (2005) *Summary of Government Assignment Healthy Dietary Habits and Increased Physical Activity- the Basis for an Action Plan*. Stockholm: National Institute of Public Health.
59. Federal Office of Public Health (2011) *Actionsante: Eat More Move Better Activity Report 2009–2010*. Berne: Federal Office of Public Health.
60. Federal Office of Public Health (2008) *Summary: National Programme on Diet & Physical Activity 2008–2012*. Bern: Federal Office of Public Health.
61. Department of Health (2005) *Choosing a Better Diet: a Food and Health Action Plan*. London: Department of Health.
62. Colorado Physical Activity and Nutrition Coalition & Colorado Department of Public Health and Environment (2010) *Colorado Physical Activity and Nutrition State Plan 2010*. Denver: Colorado Department of Public Health and Environment.
63. Livewell Colorado (2007) *Inspiring Healthy Eating and Active Living*. Denver: Livewell Colorado.
64. Colorado Physical Activity and Nutrition Program & Colorado Department of Public Health and Environment (2010) *Smart Meal Seal Program*. Denver: Colorado Department of Public Health and Environment.
65. Washington State Department of Health (2008) *Washington State Nutrition & Physical Activity Plan Policy and Environmental Approaches*. Olympia: Washington State Department of Health.
66. California Food Policy Advocates (2010) Healthy beverages in child care. In *AB 2084. State Legislative Agenda*. California: California State Legislature.
67. California Department of Public Health & California Obesity Prevention Program (2010) *California Obesity Prevention Plan: A Vision for Tomorrow, Strategic Actions for Today Sacramento*. California: Department of Public Health & California Obesity Prevention Program.
68. Padilla & Migden (2008) *SB 1420: Provision of Nutritional Information on Specified Food Facilities*. California: The Senate.
69. Mendoza (2008) *AB 97 Food Facilities: Trans Fats*. California: Assembly Bill.
70. Florez (2010) *Taxing Soda to Fund Childhood Obesity Prevention*. California: California Centre for Public Health Advocacy.

71. North Dakota Department of Health (2008) *North Dakota Healthy Eating and Physical Activity: A State Plan for Action*. North Dakota: North Dakota Department of Health.
72. North Dakota Department of Public Instruction (2006) *Local Wellness Policy*. North Dakota: North Dakota Department of Public Instruction.
73. Caldwell D, Dunn C, Keene A *et al.* (2006) *Eat Smart Move More: North Carolina's plan to prevent overweight, obesity and related chronic diseases*. Raleigh: Eat Smart Move More Leadership Team.
74. Vodicka S, Albright J, Andersen K *et al.* (2008) *Prepare and Eat More Meals at Home*. North Carolina: Eat Smart Move More Leadership Team.
75. Dunn C, Caldwell D, Thaxton S *et al.* (2005) North Carolina's eat smart standards for all foods available in school. *Nutr Rev* **40**, 176–186.
76. Louisiana Council on Obesity Prevention & Management, Department of Health & Hospitals' Nutrition Services, Department of Education *et al.* (2009) *School Wellness Policy Action Plan Guide*. Baton Rouge: Department of Health and Hospitals.
77. Centre for Safe and Healthy Schools (2009) *Preventing Childhood Obesity: A School Health Policy Guide*. Virginia: National Association of State Boards of Education.
78. Louisiana Council on Obesity Prevention and Management (2007) *Strategic Plan 2007–2010*. Louisiana: Louisiana Council on Obesity Prevention and Management.
79. State of Louisiana Department of Education (2006) *Wellness Policy Template*. Louisiana: State of Louisiana Department of Education.
80. Mississippi State Department of Health & Education SoMaMDo (2007) *An Environmental Scan of Childhood Obesity Efforts in MISSISSIPPI*. Mississippi: Mississippi Department of Health.
81. Chaney, Thomas, Clarke *et al.* (2007) *Mississippi Healthy Students Act*. Mississippi: Mississippi Legislature.
82. Mississippi Department of Health (2007) *Mississippi State Health Plan*. Jackson: Mississippi Department of Health.
83. Mississippi State Department of Health, Mississippi Chronic Illness Coalition-CVD Advisory Committee & Prevention MTFoHDaS (2004) *Mississippi State Plan for Heart Disease and Stroke Prevention and Control 2004–2013*. Mississippi: Mississippi State Department of Health.
84. Centres for Disease Control and Prevention (CDC) (2009) Behavioural Risk Factor Surveillance System Survey Data. [http://www.cdc.gov/brfss/technical\\_infodata/surveydata/2009.htm](http://www.cdc.gov/brfss/technical_infodata/surveydata/2009.htm) (accessed 1 August 12).
85. National Taskforce on Obesity (2005) *Obesity: The Policy Challenges*. Dublin: Department of Health.
86. Food and Drug Administration (2010) Nutrition labelling of standard menu items at chain restaurants: Section 4205: Department of Health and Human Services.
87. Trübswasser U & Branca F (2009) Nutrition policy is taking shape in Europe. *Public Health Nutr* **12**, 295–306.
88. Jaime PC & Lock K (2009) Do school based food and nutrition policies improve diet and reduce obesity? *Prev Med* **48**, 45–53.
89. Levitsky DA & Pacanowski CR (2011) Free will and the obesity epidemic. *Public Health Nutr* FirstView, 1–16.
90. MacKay S (2011) Legislative solutions to unhealthy eating and obesity in Australia. *Public Health* **125**, 896–904.
91. Capacci S, Mazzocchi M, Shankar B *et al.* (2012) Policies to promote healthy eating in Europe: a structured review of policies and their effectiveness. *Nutr Rev* **70**, 188–200.
92. Christensen M & Patterson S (Not dated) *Changing the environment by offering healthy restaurant Choices to Adults and Children*, Poster ed. Colorado: Colorado Physical Activity and Nutrition Program & Colorado Department of Public Health and Environment.
93. Tannahill C & Sridharan S (2012) Getting real about policy and practice needs: Evaluation as a bridge between the problem and solution space. *Eval Program Plann* (Epublication ahead of print version).
94. Lachat C, Naska A, Trichopoulou A *et al.* (2011) Essential actions for caterers to promote healthy eating out among European consumers: results from a participatory stakeholder analysis in the HECTOR project. *Public Health Nutr* **14**, 193–202.
95. Sualakamala S & Huffman L (2010) Value Negotiation for healthy food selection in restaurants. *J Culinary Sci Technol* **8**, 242–256.
96. Harnack L & French S (2008) Effect of point-of-purchase calorie labeling on restaurant and cafeteria food choices: A review of the literature. *Int J Behav Nutr Phys Act* **5**, 51.
97. Swartz J, Braxton D & Viera A (2011) Calorie menu labelling on quick-service restaurant menus: an updated systematic review of the literature. *Int J Behav Nutr Phys Act* **8**, 135.
98. Young DR, Wolfe HE, Ramanath A *et al.* (2011) The effectiveness of point-of-selection calorie posting in restaurants: a systematic review and meta-analysis. *J Am Diet Assoc* **111**, A90.
99. Dumanovsky T, Huang CY, Nonas CA *et al.* (2011) Changes in energy content of lunchtime purchases from fast food restaurants after introduction of calorie labelling: cross sectional customer surveys. *Br Med J* **343**, d14464.
100. Bruemmer B, Krieger J, Saelens BE *et al.* (2012) Energy, saturated fat, and sodium were lower in entrées at chain restaurants at 18 months compared with 6 months following the implementation of mandatory menu labeling regulation in King County, Washington. *J Acad Nutr Diet* **112**, 1169–1176.
101. Stutts MA, Zank GM, Smith KH *et al.* (2011) Nutrition information and children's fast food menu choices. *J Consum Aff* **45**, 52–86.
102. Yamamoto JA, Yamamoto JB, Yamamoto BE *et al.* (2005) Adolescent fast food and restaurant ordering behavior with and without calorie and fat content menu information. *J Adolesc Health* **37**, 397–402.
103. Holmes AS, Serrano EL, Machin JE *et al.* (2012) Effect of different children's menu labeling designs on family purchases. *Appetite* (Epublication ahead of print version).
104. Food Standards Agency (2009) Calorie Labelling and Nutrition Information in Catering. <http://www.food.gov.uk/scotland/scotnut/healthycatering/cateringbusiness/calorie> (accessed 26 July 2012).
105. Food Standards Agency (2011) *Northern Ireland Caterers' Calorie Information Pilot*. Belfast: Food Standards Agency.
106. Food Safety Authority of Ireland (2012) *Putting Calories on Menus in Ireland: Technical Guidance for Food Businesses*. Dublin: Food Safety Authority of Ireland.
107. Food Safety Authority of Ireland (2012) *Calories on Menus in Ireland: Report on a National Consultation*. Dublin: Food Safety Authority of Ireland.
108. Stewart H, Blisard N, Jolliffe D *et al.* (2005) The demand for food away from home: do other preferences compete with our desire to eat healthfully? *J Agr Resour Econ* **30**, 520–536.
109. World Health Organisation (2006) *Marketing of Food and Non-alcoholic Beverages to Children: Report of WHO*

- Forum and Technical Meeting*. Oslo: World Health Organisation.
110. Cairns G, Angus K & Hastings G (2009) *The extent, nature and effects of food promotion to children: a review of the evidence to December 2008*. Geneva: World Health Organisation.
  111. House of Commons Health Committee (2004) *Obesity: Third Report of Session 2003–2004*. London: The Stationery Office.
  112. National Heart Alliance (2008) *Protecting Children from Marketing of Unhealthy Foods*. Dublin: National Heart Alliance.
  113. Brownell KD, Schwartz MB, Puhl RM *et al.* (2009) The need for bold action to prevent adolescent obesity. *J Adolesc Health* **45**, S8–S17.
  114. Glanz K, Basil M, Maibach E *et al.* (1998) Why Americans eat what they do: taste, nutrition, cost, convenience, and weight control concerns as influences on food consumption. *J Am Diet Assoc* **98**, 1118–1126.
  115. Ward P, Mamerow L, Henderson J *et al.* (2012) The social determinants of food purchasing practices: who chooses price-before-health, taste-before-price or organic foods in Australia? *Food Nutr Sci* **3**, 461–470.