WHO Regional Office for Europe
NUTRIENT PROFILE MODEL
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nutrient profile model
Abstract

This publication describes a regional nutrient profile model for use and adaptation by Member States of the WHO European Region when developing policies to restrict food marketing to children.

Keywords

CHRONIC DISEASE
OBESITY
NUTRITION POLICY
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CHILDREN
FOOD
Contents

Acknowledgements iv
Introduction 1
About the European nutrient profile model 2
How to use this model 3
Definitions of terms used in this model 3
References 4
Annex 1. WHO Regional Office for Europe nutrient profile model 5
Acknowledgements

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Introduction

In July 2013 the ministers of health of the WHO European Member States adopted the Vienna Declaration on Nutrition and Noncommunicable Diseases in the Context of Health 2020 (1). This Declaration acknowledged the high burden of disease caused by unhealthy diets in many countries of the Region and expressed particular concern about the rise of overweight and obesity among children.

The Vienna Declaration included a commitment to take “decisive action to reduce food marketing pressure to children with regard to foods high in energy, saturated fats, trans fatty acids, free sugars or salt” and to develop and implement common policy approaches that promote, among other things, the use of common nutrient profiling tools. The development of a regional nutrient profile model as a common tool for use or adaption by Member States across Europe (on a voluntary basis and taking into account individual national circumstances) has since been identified as a key activity in the European Food and Nutrition Action Plan 2015–2020 (2).

This nutrient profile model has been developed by the WHO Regional Office for Europe in response to this mandate and has been specifically designed for the purpose of restricting the marketing of foods to children. A 2013 report by the Regional Office indicated that few countries in the European Region have fully implemented restrictions on the marketing of foods to children (3). One of the reasons for the less than optimal progress in policy development may be the difficulty in overcoming the challenge of classifying foods for which marketing should be restricted, which in turn results from the lack of an appropriate nutrient profile model or other means of classifying foods. A handful of countries worldwide have developed, or are developing, nutrient profile models. Of the 53 countries in the Region, only Denmark, Ireland, Norway and the United Kingdom have used a nutrient profile model in connection with marketing restrictions.

WHO has been working to help Member States develop nutrient profile models since 2009. A Guiding Principles Framework and Manual has been developed and field-tested in six different countries (4). The first edition is due to be published shortly and a second edition, incorporating feedback from the workshops and field-testing, is planned. WHO has also developed a catalogue of nutrient profile models containing details of nutrient profile models that conform to certain standards (5).

The European Network on Reducing Marketing Pressure on Children, which is led by the Norwegian Directorate of Health and involves 28 Member States and is facilitated by the Regional Office, has conducted some work related to nutrient profiling. Recent meetings of the Network have recognized the value of working towards a common nutrient profile model for use or adaptation by Member States in the European context. The Regional Office was requested to take action on this issue in seeking to develop a common approach to nutrient profiling across the Region. It is recognized that this work has implications for the other regional offices of WHO, and their collaboration has been sought throughout.

In December 2013, an expert meeting was held to agree on the principles and necessary steps in developing a common nutrient profile model (6) and to allow participants to draw on the lessons learned by those countries that have already developed nutrient profile models for the purpose of restricting the marketing of foods to children. Following this meeting, the Regional Office developed a proposal for a model and conducted a series of consultations on the draft with Member States (at the technical level), including in-country pilot testing and a face-to-face consultation during a meeting of the European Network on Reducing Marketing Pressure on Children, held in March 2014. The following countries have been actively engaged at various stages of the consultation process: Albania, Austria, Bulgaria, Czech Republic, Denmark, Estonia, Finland, Hungary, Israel, Norway, Poland, Portugal, Serbia, Slovenia, Switzerland and the former Yugoslav Republic of Macedonia. Other countries have expressed an active interest.

The in-country pilot testing involved countries applying the proposed model to a nationally generated list of between 100 and 200 foods that are either: (i) frequently marketed to children, or (ii) commonly consumed (ideally a combination of both). Countries were asked to comment on the food categories, the nutrient thresholds, the proposed exclusions and prohibitions, and to confirm that the model categorized foods in line with national food-based dietary guidelines. Countries responding to the consultation found the food categories and nutrient thresholds to be largely appropriate and only proposed minor modifications. There were some significant differences in the nutritional quality of frequently advertised and commonly consumed foods that countries reported, indicating that the marketing environment varies across the Region. Some countries reported food products being marketed or consumed with very high levels of nutrients of public health concern. All countries were, however, supportive and felt that the model was appropriately strict for their national context.
About the European nutrient profile model

Nutrient profiling is “the science of classifying or ranking foods according to their nutritional composition for reasons related to preventing disease and promoting health” (4). Nutrient profiling has been recognized by WHO as a useful tool for a variety of applications and is considered to be a critical tool for the implementation of restrictions on the marketing of foods to children (1,7). Nutrient profiling provides a means of differentiating between foods and non-alcoholic beverages (henceforth “foods”) that are more likely to be part of a healthy diet from those that are less likely (notably those foods that may contribute to excess consumption of energy, saturated fats, trans fats, sugar or salt). Nutrient profiling is a tool to categorize foods, not diets, but can be used through policy to improve the overall nutritional quality of diets.

A number of existing models were considered for use and adaptation at a European level. Worldwide, several governments – including those in the Australia, Ireland, New Zealand, Norway, Sweden, the United Kingdom and the United States – have developed nutrient profile models, some of which have now been incorporated into legislation. Ultimately, however, three European models were selected for consideration during this process: the Danish, Norwegian and United Kingdom models. These are the only three models that are currently in use in Europe for restricting marketing to children and have been either developed by governments or (in the case of the Danish model) endorsed by government.

After consideration, it was decided to base the European nutrient profile model on two existing models: the Norwegian model, developed by the Norwegian government and adapted by industry with minor changes for voluntary restrictions in Norway (8), and the model developed by the Danish Forum of Responsible Food Marketing Communication (9), endorsed by the Danish government for voluntary restrictions in Denmark. While all three models considered were relatively strict and categorized foods similarly (for example, in the majority of cases the same foods would/would not be permitted under any model), the rationale for selecting the Danish and Norwegian models was that they are based on food categories rather than using a scoring system. Category-specific models are considered easier to adapt or modify than models based on scoring, which is an important consideration for a regional model that countries will be looking to use nationally.

The final model consists of a total of 17 food categories (with some subcategories) (Annex 1). Categories 1–7 and 9 in the Regional Office model are broadly the same as the eight categories in the Norwegian model. Categories 8, 11 and 13–17 are taken from the Danish model. Categories 10 and 12 are new categories that were added during the consultation process with countries. Descriptions of the food products included/not included within the food categories were taken from both models and supplemented with further examples. The list is not exhaustive and may be added to when used nationally.

Further indication of which food products fall within these categories is provided by using international customs tariff codes. This approach was first used by Hungary for the implementation of its public health tax, and subsequently used in the Norwegian nutrient profile model. The food tariff codes in the Regional Office nutrient profile model were taken from The Harmonized Commodity Description and Coding System, which is used globally including by the European Union. Every food product can be categorized according to a specific tariff code. These codes are provided at two levels of detail in this model: four digits, which is the position number and broadly relates to food product categories, and (where possible) a six-digit subposition number, which provides more detail about the specific subcategory of food products. At the national level, tariff codes can be further specified to eight digits, or item numbers. When adopting or adapting the model for use in national contexts, Member States may consider using the eight-digit codes. Food companies should be familiar with the international tariff code system.

Nutrient thresholds for the model have largely been taken from the Danish and Norwegian models. The nutrients covered by the model are: total fat, saturated fat, total sugars, added sugars and salt. Energy is included for category 9 (Ready meals, convenience foods and composite dishes), while non-sugar sweeteners have also been included for category 4 (specifically subcategories 4b Milk drinks and 4d Other beverages). Thresholds for the categories taken from the Norwegian model are largely as specified in that document, except in cases where the criteria for the same category are stricter or more comprehensive in the Danish model (categories 6, 7 and 9). For these categories, some of the thresholds are as specified by the Danish model. The thresholds for the Danish categories are largely as specified in the Danish model. Thresholds for categories 10 and 12 (new to this model) have been extrapolated from similar categories in the Danish model (the threshold for category 10 was taken from the equivalent threshold for category 8 and the thresholds for category 12 were taken from category 11). Thresholds for salt for categories 6, 8, 11, 12 and 14 have been taken from the Finnish Ministry of Trade and Industry Decree on food packing markings 1084/2004, section 25 (10). For these categories, salt criteria were missing from the Danish and Norwegian models but during consultation and pilot-testing with countries it was considered important to set thresholds. According to the model, marketing for five categories is not permitted, meaning that no nutrient criteria are required. The same applies to the two food categories

1 New thresholds will be implemented in Finland as part of this Decree from 2016, and the salt thresholds for the relevant categories in this model will then be updated accordingly.
for which marketing is always permitted. In a few instances stricter nutrient thresholds were introduced following consultation with countries and to be in line with WHO nutrition guidelines.

Marketing is prohibited if the product contains > 1 g per 100 g total fat in the form of industrially-produced trans fatty acids, or ≥ 0.5% of total energy in the form of alcohol.

How to use this model

This model is designed for use by governments for the purposes of restricting food marketing to children. When determining whether a food product may or may not be marketed to children, a government (or food company) should take the following steps.

1. Identify which food category the product falls under. In some cases this will be clear according to the food category name (for example, breakfast cereals; yoghurts). In other cases, it may be necessary to reference the “included in category” or “not included in category” columns, and/or check the customs tariff code number.

2. Once the appropriate food category has been identified, the nutritional content of the food product must be cross-checked against the thresholds. A food product must not exceed on a per 100 g/ml basis any of the relevant thresholds for that food product category if marketing is to be permitted. For example, in the case of breakfast cereals, a product must not exceed the criteria for total fat, total sugars or salt.

3. The food products should, where possible, be assessed as sold or as reconstituted (if necessary) according to the manufacturer’s instructions.

4. If the marketing is for a restaurant meal, including a quick-service or take-away meal of two or more menu items, all items must individually meet the relevant nutrient criteria.

5. If the product is a food that has a protected designation of origin or a protected geographical indication or is a guaranteed traditional speciality, marketing may be permitted according to national context.

For the purpose of this nutrient profile model the term “added sugar” is used because available data in food composition tables refer to added sugar, defined here as all monosaccharides and disaccharides added to foods and beverages by the manufacturer, cook or consumer during processing or preparation. The WHO guidelines on sugars are for free sugars, covering monosaccharides (such as glucose or fructose) and disaccharides (such as sucrose or table sugar) added to foods by the manufacturer, cook or consumers in addition to sugars naturally present in honey, syrups, fruit juices and fruit concentrates (in this case, intrinsic sugars in, for example, fruits and vegetables are not considered free sugars).

Non-sugar sweeteners are food additives (other than a mono- or disaccharide sugar) which impart a sweet taste to a food. The technological purposes for this functional class include sweetener, intense sweetener and bulk sweetener. It should be noted that products such as sugars, honey and other food ingredients that can be used to sweeten are not associated with the term “sweetener”.

Energy refers to the total chemical energy available in food and its macronutrient constituents (carbohydrates, fats, proteins).

Saturated fat refers to the major saturated fatty acids in the diet, namely C14, C16 and C18, except in the case of milk and coconut oil where saturated fatty acids range from C4 to C18.

Industrially produced trans fatty acids refers to the major trans fatty acids in the diet which are typically isomers of 18:1 trans derived from partial hydrogenation of vegetable oils, a technique that produces semi-solid fats for use in commercial baking and frying, margarines and food manufacturing.

Salt — 1 g of sodium is equivalent to about 2.5 g of salt.
References


### Annex 1. WHO Regional Office for Europe nutrient profile model

<table>
<thead>
<tr>
<th>Food category</th>
<th>Included in category (examples)</th>
<th>Not included in category (examples)</th>
<th>Customs tariff code (position and/or subposition number)*</th>
<th>Marketing not permitted if product exceeds, per 100g*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Chocolate and sugar confectionery, energy bars, and sweet toppings and desserts</td>
<td>Chocolate and other products containing cocoa white chocolate, jelly sweets, and boiled sweets, chewing gum and bubble gum, caramel, liqueur sweets, spreadable chocolate and other sweet spreads, and nuts or biscuits, nuts or chocolate bars, chocolate ivy</td>
<td>Chocolate flavoured breakfast cereals and pastries/biscuits and other baked goods covered in chocolate</td>
<td>19.04; 19.06; some of 19.05.20; some of 20.08.19.05.20; some of 21.06</td>
<td>Not permitted</td>
</tr>
<tr>
<td>2 Cakes, sweet biscuits and pastries other sweet bakery wares, and dry mixes for making such.</td>
<td>Pastries: croissants; cookie biscuits; sponge cakes; wafers; fruit press sweet buns; chocolate-covered biscuits; cake mixes and batters.</td>
<td>Bread and bread products</td>
<td>19.01; 19.03.20; 19.05.31; 19.03.32</td>
<td>Not permitted</td>
</tr>
<tr>
<td>3 Savoury snacks</td>
<td>Popcorn and maize corn; seeds; nuts and mixed nuts; savoury biscuits and pretzels; other snacks made from rice, maize, dough or potato.</td>
<td>08.00; 08.02; 08.05; 19.04.10; 19.04.20; some of 19.05; 19.08; 19.08.19; 19.08.99</td>
<td>0</td>
<td>0.1</td>
</tr>
<tr>
<td>4 Beverages</td>
<td>a) Juices: 100% fruit and vegetable juices; juices reconstituted from concentrate and smoothies</td>
<td></td>
<td>20.09</td>
<td>Not permitted</td>
</tr>
<tr>
<td></td>
<td>b) Milk drinks*:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>i) Milk and milk substitutes; ice cream; milk chocolate; milk bars; milk drinks; pap; soya drinks; soya milk; soya milk-based products; soya-based ice cream; soya ice cream; soy milk; soy milk products; soy beans</td>
<td>Some of 04.01; some of 04.02; 22.02.90</td>
<td>2.5</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>c) Energy drinks</td>
<td>Some of 22.02</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>d) Other beverages: Cola, lemonade, orangeade; other soft drinks, mineral and/or flavoured waters (including aerated) with added sugars or sweeteners</td>
<td>100% fruit and vegetable juices; milk drinks</td>
<td>22.01; some of 22.02</td>
<td>0</td>
</tr>
<tr>
<td>5 Slob ice</td>
<td>Ice cream, frozen yoghurt, iced lollies and sorbets</td>
<td>21.05</td>
<td></td>
<td>Not permitted</td>
</tr>
<tr>
<td>6 Breakfast cereals</td>
<td>Oatmeal cornflakes; chocolate breakfast cereals; muesli</td>
<td>19.04.10; 19.04.20</td>
<td>10</td>
<td>15</td>
</tr>
<tr>
<td>7 Yoghurts, sour milk, cream and other similar foods</td>
<td>Yoghurt; kefir; buttermilk; flavoured sour; fermented milk and drinking yoghurt fromage frais; cheese-based and other yoghurt substitutes; yoghurt products containing additional ingredients (such as fruit, mainly cream</td>
<td>Milk and sweetened milk; almonds; rice and oat milks</td>
<td>Some of 04.02; 04.03; 04.04; some of 04.06.10; 19.01.95; some of 21.06</td>
<td>2.5</td>
</tr>
<tr>
<td>8 Cheese</td>
<td>Medium-hard and hard cheeses; soft cheeses; fresh cheese (such as ricotta, mozzarella); grated or powdered cheese; cheese sauces; cheese processed cheese; spreadable cheese</td>
<td>04.06</td>
<td>20</td>
<td>10</td>
</tr>
<tr>
<td>9 Ready-made and convenience foods and composite dishes</td>
<td>Pizza; lasagne and other pasta dishes with sauces; quiches; ready meals; ready-made sandwiches; filled pastries; soups and stews; (packaged or tinned) milks and desserts</td>
<td>16 of some of 19.01.20; 19.02.19; 19.02.20; some of 19.05; some of 20.05; 21.04</td>
<td>10</td>
<td>4</td>
</tr>
<tr>
<td>10 Butter and other fats and oils</td>
<td>Butter; vegetable oils; margarine and spreads</td>
<td>04.06</td>
<td>15</td>
<td>20</td>
</tr>
<tr>
<td>11 Bread, bread products and crisp bread</td>
<td>Ordinary bread (containing cereal flours and salt); gluten-free bread; unleavened bread; crisp bread; rolls and toasted breads</td>
<td>Sweet biscuits, pastries, cakes</td>
<td>19.05; 19.06; 19.07; 19.08</td>
<td>10</td>
</tr>
<tr>
<td>12 Fresh or dried pasta, rice and grains</td>
<td>Filled pasta and pasta in sauce</td>
<td>15 some of 11; 19.02 excluding 19.02.20</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>13 Fresh and frozen meat, poultry fish and similar</td>
<td>Eggs</td>
<td>02 excluding 02.10; some of 03 excluding 03.06</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14 Processed meat, poultry fish and similar</td>
<td>Sausage, ham, bacon; chicken nuggets; smoked and pickled fish; smoked fish in brine or oil; fish fingers and breaded/battered fish</td>
<td>Pepperoni pizza</td>
<td>02.10; some of 03; some of 16</td>
<td></td>
</tr>
<tr>
<td>15 Fresh and frozen fruit, vegetables and legumes</td>
<td>Fruit and vegetables; legumes; stalky vegetables; nuts and tubers</td>
<td>Tinned fruits, vegetables and legumes in syrup; dried fruit; frozen fruit with added sugar</td>
<td>07 excluding 07.07.07; 07.07.13; some of 08 excluding 08.01; 08.02; 08.11; 8.12; 08.13; 08.14</td>
<td></td>
</tr>
<tr>
<td>16 Processed Fruit, vegetables and legumes</td>
<td>Tinned fruit, vegetables and legumes; dried fruit*; dried vegetables and legumes; marmalade jars; pickled vegetables and fruit stewed fruits; Fruit peel; frozen French fries; frozen fruit with added sugar</td>
<td>Fruit juice</td>
<td>07.07; 07.07; 07.12; 07.13; some of 08.05; some of 08.06; 08.11; 08.12; 08.17 and 06.14 2601-2002, 2003-2004, 2005-2006, 2007-2008, 2009-2010, 2011-2013; 19.08.70; 19.08.80; 19.08.90; 19.08.97; 19.08.99</td>
<td>5</td>
</tr>
<tr>
<td>17 Sauces, dips and dressings</td>
<td>Salad dressings; tomato ketchup; mayonnaise; ready-to-use dips; soy sauce; mustard; mustard flour</td>
<td></td>
<td>21.03</td>
<td>10</td>
</tr>
</tbody>
</table>

**Sat. fat** = saturated fat.

* Where appropriate, a four-digit position number has been given. Where “some of” is indicated this means that most (but not all) food products in this position number are covered. In some instances a six-digit subposition is provided so as to pinpoint specific products more easily.

† The food products should, where possible, be assessed as sold or as reconstituted (if necessary) according to the manufacturer’s instructions.

‡ Salt equivalent.

§ This is in line with the WHO Guidelines on Sugars Intake for Children and Adults (in press), as fruit juices are a significant source of free sugars for children. However, it is recognized that countries, according to national context and national food-based dietary guidelines, may take the decision to permit the marketing of 100% fruit juices in small portions.

* For this category countries may choose to include a threshold for minimum dietary fibre content, for example: 15g dietary fibre.

* There is no agreement on a definition of energy drinks. However, such a category of drinks includes a variety of non-alcoholic beverages. While caffeine is considered the main ingredient, a number of other substances are often present. The most common of these include guarana, taurine, glucuronolactone and vitamins. A common feature is that these beverages are marketed for their actual or perceived effects as stimulants, energizers and performance enhancers.
The World Health Organization (WHO) is a specialized agency of the United Nations created in 1948 with the primary responsibility for international health matters and public health. The WHO Regional Office for Europe is one of six regional offices throughout the world, each with its own programme geared to the particular health conditions of the countries it serves.

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