Nutrition labelling policies:

WHO guideline

Draft guideline for public consultation

SEPTEMBER 2024

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Acknowledgements

[Acknowledgements to be updated prior to finalization of guideline]

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Abbreviations

BMI	body mass index
CI	confidence interval
FOPL	front-of-pack labelling
GDA	Guideline Daily Amount
GIFNA	Global database on the Implementation of Food and Nutrition Action
GRADE	Grading of Recommendations Assessment, Development and Evaluation
HIC	high-income country
LMIC	low- and middle-income country
NCD	noncommunicable disease
NUGAG	Nutrition Guidance Expert Advisory Group
PICO	population, intervention, comparator and outcome
RCT	randomized controlled trial
SENS	Système d'Etiquetage Nutritionnel Simplifié [simplified nutrition labelling system]
WHO	World Health Organization

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Glossary

Food: Foods and non-alcoholic beverages.

Front-of-pack labelling (FOPL): A form of supplementary nutrition information that presents simplified nutrition information on the front of the packaging of prepackaged food. It can include symbols/graphics, text or a combination thereof that provide information on the overall nutritional value of the food and/or on the nutrients included in the FOPL *(1)*. The two major categories of FOPL are interpretive FOPL and non-interpretive FOPL. Interpretive FOPL provides at-a-glance guidance on the relative healthfulness and/or unhealthfulness of the food product. Non-interpretive FOPL provides information on nutrient content, but does not provide advice or direction on the nutritional value of the food to facilitate understanding and assist with purchasing decisions *(2)*.

Health halo effect: An effect that occurs when labelling creates a perception that a particular food is healthier for the consumer, even where there is little or no evidence that it is.

List of ingredients: A list of all ingredients of a food (which are any substances, including food additives, used in the manufacture or preparation of a food and present in the final product, although possibly in a modified form), presented in descending order of ingoing weight.

Nutrient declarations: A standardized statement or listing of the nutrient content of a food *(1)*.

Nutrition labelling: In the context of this guideline, the following label components: list of ingredients, nutrient declaration, FOPL, and nutrition and health claims.

Nutrient profile model: A tool for classifying foods according to their nutritional composition for reasons relating to preventing disease and promoting health.

Nutrition and health claims: Any representation about the nutritional properties of a food or about the relationship between a food and health. A nutrition claim is any representation which states, suggests or implies that a food has particular nutritional properties including, but not limited to, the energy value and the protein, fat, carbohydrate, vitamin and mineral contents *(3)*. A health claim is any representation that states, suggests, or implies that a relationship exists between a food, or a constituent of a food, and health *(3)*. Nutrition and health claims inform consumers about a particular characteristic of a food. They are frequently used as a marketing tool and tend to generate a health halo effect.

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

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Executive summary

Background

The global burden of disease attributable to unhealthy diets is a major public health and development challenge. Urgent action is required to address malnutrition in all its forms, including undernutrition; micronutrient-related malnutrition; and overweight, obesity and diet-related noncommunicable diseases (NCDs). To accelerate progress, particularly in addressing diet-related NCDs, a comprehensive policy approach that creates enabling and supportive food environments is required.

Nutrition labelling has the power to modify the production and consumption of food, including prepackaged food. Given shifts in the global food system and transitions in diet towards prepackaged food, labelling is now not only a primary communication tool, but also a valuable marketing asset aimed at influencing food decisions and purchases. A government-led, evidence-based and transparent approach to nutrition labelling policies is therefore required.

Objective, scope and methods

In response to Member State requests, the World Health Organization (WHO) developed this guideline to strengthen and streamline support for Member States in developing and implementing new, or strengthening existing, nutrition labelling policies.

The objectives of this guideline are to:

- provide evidence-based recommendations and implementation considerations on nutrition labelling policies, including those regulating the use of the list of ingredients, nutrient declarations, front-of-pack labelling (FOPL), and nutrition and health claims;
- enable evidence-informed advocacy to advance policy action;
- guide future research to further strengthen the evidence base for policy action; and
- contribute to the creation of food environments that enable healthy dietary practices among children and adults.

The scope of this guideline is nutrition labelling policies, with a focus on the list of ingredients, nutrient declarations, FOPL (both interpretive and non-interpretive), and nutrition and health claims. The following types of labelling were outside the scope of this guideline: menu board signposting, shelf labels, labels on food served cafeteria-style (i.e. food served in the out-of-home sector), labelling on infant formula, complementary foods and dietary supplements, and non-nutrition labelling (such as country of origin labelling, allergy warnings, genetically modified organism labelling, and environmental sustainability labelling).

This guideline was developed using the procedures outlined in the *WHO handbook for guideline development*. These procedures include a review of systematically gathered evidence by an international, multidisciplinary group of experts (the Nutrition Guidance Expert Advisory Group (NUGAG) Subgroup on Policy Actions); assessment of the certainty of that evidence via Grading of Recommendations Assessment, Development and Evaluation (GRADE); and consideration of additional decision criteria potentially relevant for the translation of the identified evidence into recommendations.

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The evidence

List of ingredients

The systematic review identified very little evidence related to the list of ingredients.

Nutrient declarations

The systematic review showed that, compared with when no nutrient declaration was present, nutrient declarations likely improved consumer understanding of the nutritional quality or contents of foods (moderate certainty evidence). The presence of nutrient declarations may also improve the healthfulness of food choices (low certainty evidence). No randomized controlled trials (RCTs) reported on the outcomes of consumer awareness of nutrient declarations, search or use of labels, food purchase, food composition, body weight, diet-related NCDs or unintended consequences.

FOPL

The systematic review found that, compared with no FOPL, FOPL likely improved consumer understanding of the nutritional quality or content of food (moderate certainty evidence), the healthfulness of food choices (moderate certainty evidence) and the healthfulness of food purchases (moderate certainty evidence). Consumer search or use of nutrition information may also be improved when FOPL is present (low certainty evidence).

The two major categories of FOPL are interpretive FOPL and non-interpretive FOPL. Interpretive FOPL provides at-a-glance guidance on the relative healthfulness and/or unhealthfulness of the food product. Non-interpretive FOPL provides information on nutrient content but does not provide advice or direction on the nutritional value of the food to facilitate understanding and assist with purchasing decisions.

Compared with non-interpretive FOPL, interpretive FOPL likely improves consumer understanding of the nutritional quality or content of foods (moderate certainty evidence), the healthfulness of food choices (moderate certainty evidence) and the healthfulness of food purchases (moderate certainty evidence). Interpretive FOPL may also improve consumer search or use of nutrition information, when compared with non-interpretive FOPL (low certainty evidence).

The systematic review evidence was inconsistent when comparing different interpretive FOPL systems, finding no best-performing system. There was also limited or inconsistent evidence available on the effectiveness of label modifications such as different warning label formats or adding interpretive aids (e.g. colour coding).

Nutrition and health claims

The evidence on nutrition and health claims must be interpreted in view of their use as a marketing tool, and their potential to mislead consumers making food-related decisions. Very few studies included in the systematic review assessed the effect of the use of claims in relation to conditions of use (e.g. permitting use of claims only on foods with overall healthier nutrient profiles). Studies on the effect of claims suggested that, compared with when no claim was present, nutrition and health claims likely increased consumer perceptions of the healthfulness of food (moderate certainty evidence) and

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increased choice of labelled foods (moderate certainty evidence). The presence of claims also likely increased purchase of labelled foods (moderate certainty evidence from one RCT) and increased the price consumers were willing to pay for labelled foods (moderate certainty evidence from one RCT). Based on this evidence, nutrition and health claims appear to bestow a health halo effect on the foods on which they appear, leading to increased perceptions of food healthfulness and increased choice and purchase of these foods, irrespective of their nutritional quality.

Interaction between labelling types

Although the nutrition labelling policies within the scope of this guideline have distinct purposes, they are interdependent. Any analyses – within studies already included in the systematic review – that compared the performance of, or considered interactions between, labelling types were therefore also included in the systematic review. Data were identified for interactions between nutrient declarations and nutrition and health claims.

The evidence suggested that the presence of nutrient declarations diminishes the promotional effects of claims and can lead to more accurate judgements about the healthfulness of foods.

Contextual factors

Evidence from a review of contextual factors showed impacts on implementation of nutrition labelling policies. The factors considered were values towards the health outcomes of nutrition labelling policies; resource implications, including the costs and cost-effectiveness of interventions; equity and human rights; acceptability, reflecting the perspectives, attitudes and opinions for consumers, government and industry, and the support of these stakeholders for nutrition labelling policies; and feasibility, focusing on the feasibility of developing, implementing, administering, monitoring and evaluating nutrition labelling policies. Most included publications were related to acceptability and feasibility, from high-income countries and focused on FOPL.

- There was some variability in values about body weight status among study populations. However, there was no variability in values about diet-related NCDs, which were perceived negatively in all identified studies.
- All identified studies found nutrition labelling policies (particularly FOPL) were cost-effective (i.e. they produced larger health gains than the cost of implementing the intervention). Many of the costs, such as analysis and label design and printing, are borne by industry.
- Policies that require nutrition labelling that is truthful and non-misleading and facilitates healthy dietary decisions can contribute to the respect, protection and fulfilment of human rights, including the right to health and the right to appropriate information. Differences between population groups in awareness, use and understanding of nutrition labelling may either increase or reduce existing inequities and inequalities.
- Nutrition labelling policies are generally acceptable to stakeholders; however, this depends on context and the type of labelling.
- The existence of nutrition labelling policies in many countries points to their feasibility.

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Good-practice statements and recommendations

Good-practice statement on the list of ingredients

WHO recommends the inclusion of a list of ingredients on prepackaged food, consistent with the Codex Alimentarius *General standard for the labelling of prepackaged foods (4)*.

Statement remarks

These remarks provide context for the good-practice statement and are to facilitate interpretation and implementation.

- To address nutrition-related public health priorities, countries may need to examine whether the required declarations in the list of ingredients provide sufficient detail to inform consumers and support implementation of other food policies in line with domestic laws or dietary guidance. For example, mandating the specification of partially hydrogenated oils as an ingredient and prohibiting their grouping under the nonspecific "hydrogenated oils" can support a national strategy to eliminate industrially produced *trans*-fatty acids from the food supply.
- The listing of ingredients in descending order of incoming weight, as specified in the Codex Alimentarius *General standard for the labelling of prepackaged foods (4)*, provides useful information on the predominance of food components and ingredients relevant to nutrition and health. The general standard's provisions for mandatory quantitative ingredient declaration may further support the implementation and monitoring of national policies and dietary guidance promoting consumption of, for example, vegetables, fruits, nuts and legumes.

Statement rationale

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

- The Codex Alimentarius *General standard for the labelling of prepackaged foods (4)* indicates that a list of ingredients shall appear on the label of prepackaged food.
- The list of ingredients provides information to consumers, and regulators and other operators in the food supply chain on any substance used in the production or preparation of a food and present in the final product, including food additives and possible allergenic ingredients.
- The list of ingredients supports the implementation of, monitoring of compliance with, and enforcement of other nutrition labelling policies, including policies on nutrient declarations, FOPL, and nutrition and health claims.
- The list of ingredients also supports the implementation of, monitoring of compliance with, and enforcement of other food environment policies, including policies to restrict food marketing, policies on food taxes and subsidies, policies on school food standards, policies on public food procurement and policies on reformulation. For example, requiring the specification of partially hydrogenated oils in the list of ingredients can support policies to eliminate industrially produced *trans*-fatty acids, which are a risk factor for cardiovascular diseases.

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WHO recommendation on nutrient declarations
WHO recommends a policy to implement nutrient declarations. (Strong recommendation)

Recommendation remarks

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

- In line with the definition provided by the Codex Alimentarius *Guidelines on nutrition labelling (1)*, a nutrient declaration means a standardized statement or listing of the nutrient content of a food.
- Consistent with the Codex Alimentarius *Guidelines on nutrition labelling (1)*, nutrient declarations should be mandatory for all prepackaged food for which nutrition or health claims (as defined in the Codex Alimentarius *Guidelines for use of nutrition and health claims (3)*) are made. Nutrient declarations should be mandatory for all other prepackaged food, except where national circumstances would not support such declarations. Certain foods may be exempted from displaying nutrient declarations, for example, on the basis of nutritional or dietary insignificance or small packaging.
- The Codex Alimentarius *Guidelines on nutrition labelling (1)* recognize the need for declaration of any other nutrient considered to be relevant for maintaining a good nutritional status. Countries should determine whether the proposed nutrient declarations provide information required by domestic laws and information relevant to national dietary guidelines. For example, some countries have implemented mandatory nutrient declarations for nutrients other than those proposed to be mandatory in the Codex Alimentarius *Guidelines on nutrition labelling (1)*, such as *trans*-fatty acids, added sugars, dietary fibre, and certain vitamins and minerals.
- In line with the Codex Alimentarius *Guidelines on nutrition labelling (1)*, countries may choose to require specific features that enhance the legibility of the nutrient declaration, including features related to format, font and contrast, and may choose to consider using standardized serving sizes.

Recommendation rationale

The recommendation was formulated by the NUGAG Subgroup on Policy Actions based on several key considerations (below and **Table 2, pp. 35**).

- There was moderate certainty evidence on the effect of nutrient declarations, when compared with no nutrient declaration, on consumer understanding and low certainty evidence on their effect on food choice/intention to purchase.
- The group judged that the overall balance between desirable and undesirable effects probably favours implementing a policy on nutrient declarations. The group also judged that implementing a policy on nutrient declarations is acceptable and feasible, and likely to contribute to the respect, protection and fulfilment of human rights, particularly the right to information.

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- Evidence on the interaction between labelling types suggests that the presence of nutrient declarations diminishes the promotional effects of claims, and can lead to more accurate judgements about the healthfulness of food *(5)*.
- In line with the Codex Alimentarius *Guidelines on nutrition labelling (1)*, nutrient declarations are the basis for implementing, monitoring compliance with and enforcing other nutrition labelling policies, such as policies to implement FOPL and regulate nutrition and health claims.

WHO recommendations on FOPL
1. WHO recommends a policy to implement FOPL. (Strong recommendation) 2. WHO recommends implementation of interpretive FOPL in preference to non-interpretive FOPL. (Strong recommendation)

Remarks for FOPL recommendations 1 and 2

The following remarks provide context for the recommendations and are to facilitate interpretation and implementation.

- Consistent with the WHO *Guiding principles and framework manual for front-of-pack labelling for promoting healthy diets (2)*, FOPL refers to nutrition labelling systems that:
    - are presented on the front of food packages (in the principal field of vision) and can be applied across the packaged retail food supply;
    - comprise an underpinning nutrient profile model that considers the overall nutritional quality of the product or the nutrients of concern for NCDs (or both); and
    - present simple, often graphic, information on the nutrient content or nutritional quality of products, to complement the more detailed nutrient declarations usually provided on the back of food packages.
- The purpose of FOPL systems is to increase consumer understanding of the nutritional value of food and assist consumer interpretation of the nutrient declaration *(1)*. However, FOPL systems differ in their means of achieving this. For example, some FOPL systems inform consumers about high levels of nutrients that increase the risk of diet-related NCDs, (e.g. warning labels), whereas others inform consumers about the overall nutritional value of a food product (e.g. summary indicators).
- Interpretive FOPL provides at-a-glance guidance on the relative healthfulness and/or unhealthfulness of the food product. Examples of interpretive FOPL systems included in studies in the systematic review are summary indicators (e.g. 5-colour nutrition label/Nutri-Score, Health Star Rating, SENS), nutrient-specific FOPL (e.g. multiple traffic light label, colour-coded/traffic light GDA, tablespoons of sugar); negative nutrient-specific FOPL (e.g. warning labels) and endorsement logos (e.g. health choice).
- Non-interpretive FOPL provides information on nutrient content but does not provide advice or direction on the nutritional value of the food to facilitate understanding and assist with purchasing decisions. Examples of non-interpretive FOPL systems included in studies in the

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systematic review are reference intakes (e.g. % reference intake), GDA (e.g. % GDA) and calorie labelling (e.g. Facts Up Front).

- Evidence showed that some FOPL systems (i.e. endorsement logos) may be interpreted like claims, with potential for misinterpretation. FOPL systems that signpost less healthy foods perform better than those that only highlight healthier choices *(6)*.
- Consistent with the WHO *Guiding principles and framework manual for front-of-pack labelling for promoting healthy diets (2)*, governments should lead the development, implementation, monitoring and evaluation of FOPL, which should be in line with health and nutrition policies. The Codex Alimentarius principles for establishment of FOPL *(1)* also recognize that FOPL systems should be government-led.
- The chosen FOPL system should support the government's regulatory objectives, and the intended outcomes of the system should be consistent with domestic laws and national or regional dietary guidance and health and nutrition policies.
- FOPL systems depend on an underlying nutrient profile model. In line with the WHO *Guiding principles and framework manual for front-of-pack labelling for promoting healthy diets (2)*, governments should have ultimate responsibility and authority for the nutrient profile model that underpins a FOPL system.
- FOPL should be applied universally, to avoid the selective display of the FOPL system on a subset of food products, which limits consumers' ability to compare food products *(3, 7)*.
- Local adaptation and user-testing may be useful for meeting the specific needs of a population. They should be conducted where feasible or required by a government to inform policy development.
- FOPL is not appropriate for some prepackaged foods, including foods specially manufactured for infants and young children, and infant and follow-up formula.

Rationale for FOPL recommendation 1

The recommendation was formulated by the NUGAG Subgroup on Policy Actions based on several key considerations (below and **Table 3, pp. 38**).

- There was moderate certainty evidence on the effect of FOPL (including summary indicators, nutrient-specific interpretive FOPL, negative nutrient-specific FOPL, endorsement logos and non-interpretive FOPL), when compared with no FOPL, on consumer understanding, food choice/intention to purchase and food purchase.
- The group judged that the overall balance between desirable and undesirable effects favours implementing a policy on FOPL. The group also judged that implementing a policy on FOPL is cost-effective and feasible, and likely to contribute to the respect, protection and fulfilment of human rights, particularly the right to information.
- Implementing FOPL to support consumer understanding is consistent with the Codex Alimentarius *Guidelines on nutrition labelling (3)*.

Rationale for FOPL recommendation 2

The recommendation was formulated by the NUGAG Subgroup on Policy Actions based on several key considerations (below and **Table 4, pp. 39**).

- There is moderate certainty evidence on the effect of interpretive FOPL, when compared with non-interpretive FOPL, on consumer understanding, food choice/intention to purchase and food purchase.

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- The group judged that the overall balance between desirable and undesirable effects favours implementing a policy on interpretive FOPL. The group also judged that implementing interpretive FOPL is feasible, with negligible costs, and contributes to the respect, protection and fulfilment of human rights, particularly the right to information.

Good-practice statement on nutrition and health claims
WHO recommends protecting consumers from false, misleading and/or deceptive nutrition and health claims on food, through regulation of the use of nutrition and health claims.

Statement remarks

These remarks provide context for the good-practice statement and are to facilitate interpretation and implementation.

- To reduce the potential negative impact of nutrition and health claims on consumer understanding, food choice, food purchase and diets, policies to regulate such claims should:
    - be in line with relevant Codex Alimentarius guidelines *(4)*;
    - set conditions on the use of nutrition and health claims, including through the use of nutrient profile models;
    - include a substantiation process to prevent inappropriate claims; and
    - align with and support national nutrition, health and consumer protection policies, including other nutrition labelling policies.
- Nutrition and health claims shall not be permitted on foods for infants and young children, except where specifically provided for in relevant Codex Alimentarius standards or domestic laws.

Statement rationale

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

- The group took into consideration the Codex Alimentarius *General guidelines on claims (8)* and *Guidelines for use of nutrition and health claims (3)*.
- Nutrition and health claims influence consumer understanding of the nutritional content or quality of food (moderate certainty of evidence), food choice (moderate certainty of evidence), food purchase (moderate certainty of evidence) and diets (very low certainty of evidence).
- Nutrition and health claims are frequently used as a marketing tool, and, if left unregulated, their use can mislead consumers.
- Evidence shows misleading claims are made on foods that are high in saturated fatty acids, *trans*-fatty acids, sugars and/or sodium, and that claims increase the perceived healthfulness of foods, regardless of their nutritional quality. Claims may, therefore, bestow a health halo effect on the foods on which they appear *(6)*.

Key considerations for implementation

The recommendations in this guideline should be adapted to the local contexts of WHO regions and Member States. Considerations about the local context include:

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- identification of lead agencies or bodies that implement activities related to food and nutrition policies;
- available resources, including for policy implementation, enforcement and continued monitoring for compliance;
- structures and mechanisms, including mechanisms to manage conflicts of interest and to safeguard public health policies and enforcement mechanisms;
- the policy context, including the country's legal system and potential regulatory pathways and the overall political economy; and
- the stakeholders to consult or engage with at different stages of the policy cycle.

Importantly, the nutrition labelling policies within the scope of this guideline are not meant to be implemented independently of each other, but instead implemented coherently. The list of ingredients supports implementation of, monitoring of compliance with and enforcement of policies on nutrient declarations, FOPL, and nutrition and health claims. Nutrient declarations are the basis for implementing, monitoring compliance with and enforcing policies to regulate FOPL and nutrition and health claims. To increase consumers' ability to compare food products, FOPL should be applied universally, to avoid the selective display of the FOPL system on a subset of food products. Similarly, nutrition and health claims should be regulated to avoid their use misleading consumers.

It is crucial to select a FOPL system that aligns with its intended purpose. For example, warning labels provide information to consumers about high content of nutrients that increase the risk of diet-related NCDs (including total fat, saturated fatty acids, *trans*-fatty acids, sugars and sodium), whereas summary indicators are intended to help consumers judge the relative healthfulness or unhealthfulness of foods, typically within a product category.

Nutrition labelling policies are best implemented as part of a comprehensive policy approach to create enabling and supportive food environments. The recommendations in this guideline should be considered alongside other relevant WHO guidance and recommendations.

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1. Introduction

1.1 Background

Unhealthy diets are a leading cause of death and disability, accounting for some 8 million premature deaths globally every year *(9).* Urgent action is required to address malnutrition in all its forms, including undernutrition; micronutrient-related malnutrition; and overweight, obesity and diet-related noncommunicable diseases (NCDs).

Worldwide, obesity has more than doubled among adults since 1990 and has quadrupled among children and adolescents aged 5–19 years. In 2022, 2.5 billion adults, 390 million children and adolescents aged 5–19 years, and 37 million children under the age of 5 years were overweight *(10).* Among these, 890 million adults and 160 million children aged 5–19 years were living with obesity *(10).*

A major driver of the increases in obesity and diet-related NCDs are current food environments, with increasing availability, accessibility, affordability and marketing of foods that are high in saturated fats, *trans*-fatty acids, sugars and salt and are usually highly processed, and low intakes of whole grains, pulses, vegetables and fruits *(11).*

Every country in the world is affected by one or more forms of malnutrition. Malnutrition threatens the survival, growth and development of children and adolescents, as well as economies and nations *(12)*. Combating malnutrition in all its forms is one of the greatest global health challenges *(13, 14).* The causes of malnutrition are complex, and action is required on many fronts *(7, 15-17)*. There is wide recognition that structural changes (i.e. changes to social, cultural, political and physical environments) are required to promote healthy diets *(18)*. In the absence of these structural changes, behaviour change interventions have had limited success in reducing disease risk factors *(19).* In line with the work of the World Health Organization (WHO) on creating supportive environments for health *(20-22)*, key actions to improve diets include those that focus on the food environment – that is, the surroundings that influence and shape consumers' food behaviours, preferences and values, and prompt consumer decisions *(23)*.

Governments play a leading role in addressing malnutrition in all its forms and reducing the burden of diet-related NCDs, including through public policies that create food environments conducive to healthy diets *(24-26)* and through effective regulation of private sector activities that influence health – that is, the commercial determinants of health *(21, 27)*. The private sector, however, continues to influence public health policy and regulation, including through actions such as lobbying *(27)*.

The nutrition transition and shifts in the global food system have increased demand for prepackaged food *(28)*. Food labelling is a primary communication tool between food manufacturers or sellers and buyers or consumers *(29).* Food labels can provide information about a food's identity, contents, quality and safety, and can also inform consumers about a specific food or food component that may reduce the risk of obesity and diet-related NCDs.

With limited space available, food labels are a contested asset. Competing pressures range from ensuring food safety and protecting consumers from food fraud, to addressing varying consumer interests and needs for information, to the marketing purposes of commercial entities. This competition demands that governments take an evidence-based and transparent approach to

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nutrition labelling policies, to ensure labels provide trusted information, and to protect consumers from commercial practices that harm health.

1.2 Scope and purpose

In response to Member State requests, and to strengthen and streamline support for Member States in developing and implementing new, or strengthening existing, nutrition labelling policies, WHO began developing this guideline.

The scope of this guideline is nutrition labelling policies, with a focus on the list of ingredients, nutrient declarations, front-of-pack labelling (FOPL) (both interpretive and non-interpretive), and nutrition and health claims.

As of September 2024, 135 Member States have implemented lists of ingredients, 100 mandatory nutrient declarations on all prepackaged food and another 28 only when nutrient content claims. 115 Member States regulate the use of nutrition and health claims. 43 Member States have implemented FOPL, of which 11 have mandatory measures in place, 28 voluntary measures and four have both mandatory and voluntary measures - **Fig 1.** *(30)* [*to be added: additional information, including maps on implementation of nutrition labelling policies*].

Fig 1: Countries with nutrition labelling policies

Source: https://gifna.who.int/summary/NutritionLabelling

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Menu board signposting, shelf labels or labels on food served cafeteria-style (i.e. food served in the out-of-home sector) are outside the scope of this guideline. Labelling on infant formula, complementary foods and dietary supplements is also outside the guideline's scope, as is non-nutrition labelling, such as country of origin labelling, allergy warnings, genetically modified organism labelling and environmental sustainability labelling.

This guideline is not an implementation manual. It does not describe **how** countries can implement and monitor nutrition labelling policies, but rather recommends **what** measures to take. Implementation guidance on FOPL can be found in detailed implementation guidance manuals (see section 5.8).

This guideline complements Codex Alimentarius texts on the general use of food labelling on prepackaged foods *(4),* list of ingredients *(4),* nutrient declarations *(1)*, FOPL *(1)*, and nutrition and health claims *(3)*. The guideline complements these texts by providing information on the effect of nutrition labelling policies on defined outcomes of interest (as described further in **Table 1, pp. 23**).

A comprehensive policy approach is needed to create enabling and supportive food environments, and actions should be considered in the context of the myriad other individual, social and environmental influences on nutrition. The recommendations in this guideline should therefore be considered together with those in other WHO guidelines on policies to improve the food environment (see section 5.8).

1.3 Objectives

The objectives of this guideline are to:

- provide evidence-based recommendations and implementation considerations on nutrition labelling policies, including those regulating the use of the list of ingredients, nutrient declarations, FOPL, and nutrition and health claims;
- enable evidence-informed advocacy to advance policy action;
- guide future research to further strengthen the evidence base for policy action; and
- contribute to the creation of food environments that enable healthy dietary practices among children and adults.

As noted above, this guideline is one of several policies to improve the food environment. The overarching objective of these guidelines is to contribute to the achievement of healthier populations through multisectoral approaches in line with the WHO Fourteenth General Programme of Work (2025–2028) *(31)*. The WHO guidelines on policies to improve the food environment will also contribute to implementation of additional calls to action relating to nutrition and health (**Annex 1**).

1.4 Target audience

The guideline is intended for a wide audience involved in the development, design, implementation, monitoring and evaluation of nutrition labelling policies, as well as those involved in compliance with, and advocacy for, such policies. The end users for this guideline are thus:

- national and local policy-makers and food regulators involved in developing, designing, implementing, monitoring or evaluating nutrition labelling policies;
- implementers and managers of national and local health and nutrition programmes;
- organizations (including nongovernmental organizations) and professional societies involved in advocating for, developing and evaluating nutrition labelling policies;

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- health professionals, including managers of health and nutrition programmes and public health policy-makers in all settings;
- scientists and other academic actors involved in relevant research (including policy evaluation); and
- representatives of the food industry and related associations involved in implementing, or complying with, nutrition labelling policies.

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2. How this guideline was developed

This guideline was developed in accordance with the WHO process for development of evidence-informed guidelines outlined in the *WHO handbook for guideline development (32).* This chapter describes the contributors to the guideline development process and the steps taken.

2.1 Contributors to guideline development

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

WHO Steering Committee

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

Guideline development group

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

External resource people

Various external resource people, including methods experts and members of the systematic review teams, attended the meetings of the NUGAG Subgroup on Policy Actions (**Annex 5**). The systematic review team was led by Dr Bridget Kelly, University of Wollongong. It undertook a systematic review *(5, 6)* to support development of the guideline.

External peer review group

[To be added before finalization]

Public consultation

[To be added before finalization]

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2.2 Guideline development process

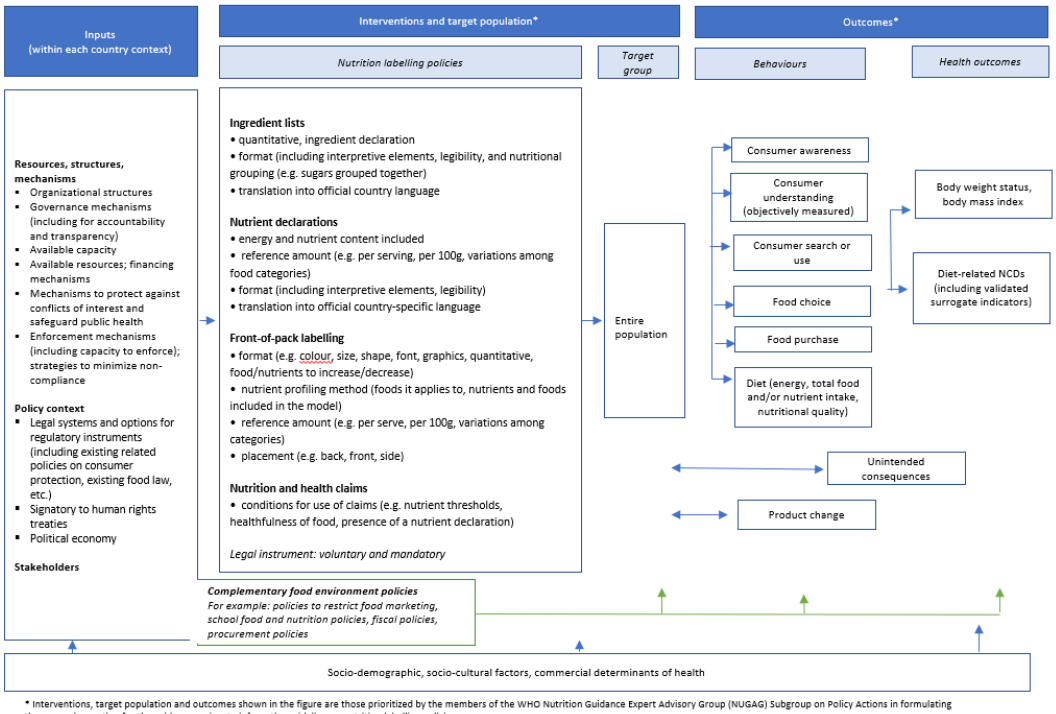
Scoping of the guideline

A scoping review of existing evidence was prepared by Dr Bridget Kelly, University of Wollongong. The aim of the scoping review was to describe the amount, nature and consistency of evidence linking nutrition labelling to consumer nutrition and health outcomes and food reformulation outcomes.

Formulation of the key question and prioritization of outcomes

Nutrition labelling policies are a priority policy option for creating food environments that contribute to healthy diets and are implemented within complex systems (including the food system), that are country-specific, and influenced by political, legal, economic, cultural and ethical contexts. As proposed in the *WHO handbook for guideline development*, logic models can be used during guideline planning to show interventions of interest and elements of the system in which they are implemented to help formulate guideline questions *(32).* **Fig. 2** shows a logic model depicting pathways from nutrition labelling policies to behavioural and health outcomes. It shows country context policy inputs and considerations, including potential interactions with other, complementary food environment policies, which can amplify the policy of interest's impact.

Fig. 2. Logic model depicting pathways from nutrition labelling policies to behavioural and health outcomes



* Interventions, target population and outcomes shown in the figure are those prioritized by the members of the WHO Nutrition Guidance Expert Advisory Group (NUGAG) Subgroup on Policy Actions in formulating the research question for the evidence review to inform the guideline on nutrition labelling policies.

The research question was formulated using the population, intervention, comparator and outcome (PICO) format, based on the scoping review and taking the logic model into consideration. The draft PICO question was first discussed and reviewed by the WHO Secretariat, the WHO Steering Committee and the NUGAG Subgroup on Policy Actions. The final PICO question was determined by the NUGAG Subgroup on Policy Actions. All potentially important outcomes were identified and discussed by the

group, followed by an anonymous online rating of outcomes on a scale from 1 to 9. Outcomes rated 7–9 were considered critical for decision-making, and those rated 4–6 were considered important. Those rated 1–3 were dropped from the PICO question.

The NUGAG Subgroup on Policy Actions noted several challenges to assessing longer-term health outcomes.

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

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

The PICO question was as follows.

- What is the effect on the outcomes of interest in adults and children of implementing a nutrition labelling policy compared with not implementing the policy or implementing a different policy?

Table 1 provides details of the key question in PICO format.

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Table 1. PICO for key question

Measure	Key question
Population	Children and adults Disaggregation by body weight, SES, nutrition/health literacy level (objectively assessed), health status (diet-related NCDs, including validated surrogate indicators), age, sex, gender, BMI, rurality, region (HICs and LMICs)

Intervention	Nutrition labelling policies
	
	Disaggregation by predetermined nutrition labelling components:
	• for list of ingredients:
	  ○ quantitative ingredient declaration
	  ○ format (including interpretive elements, legibility and nutritional grouping (e.g. sugars grouped together))
	  ○ translation into official country language
	• for nutrient declaration:
	  ○ energy and specific nutrients included
	  ○ reference amount (e.g. per serving, per 100 g, variations among food categories)
	  ○ format (including interpretive elements and legibility)
	  ○ translation into official country language
	• for FOPL:
	  ○ format (e.g. colour, size, shape, font, graphics, quantitative, food/nutrients to increase/decrease)
	  ○ nutrient profiling method (e.g. foods it applies to, nutrients and food components included in the model)
	  ○ reference amount (e.g. per serving, per 100 g, variations among food categories)
	  ○ placement (e.g. back, front, side)
	• for nutrition and health claims, including implied claims:
	  ○ conditions for use of claims (e.g. nutrient thresholds, healthfulness of food, presence of a nutrient declaration)
	
	Disaggregation by legal instrument (i.e. voluntary and mandatory)
	
	Disaggregation by degree and quality of policy implementation and enforcement

Comparator	No (or modified or different) nutrition labelling policies For the list of ingredients: • list of ingredients compared with no (or modified) list of ingredients For nutrient declarations: • nutrient declaration compared with no (or modified) nutrient declaration For FOPL: • comparison 1: FOPL compared with no FOPL • comparison 2: interpretive FOPL compared with non-interpretive FOPL (comparison between two major FOPL categories) • comparison 3: FOPL compared with modified FOPL (comparison within a labelling system (e.g. warning labels using different shapes))

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	• comparison 4: interpretive FOPL compared with different interpretive FOPL (comparison between labelling systems (e.g. multiple traffic light and Nutri-Score)) or non-interpretive FOPL (e.g. Facts Up Front and caloric labelling) For nutrition and health claims: • claim compared with no (or modified or different) claim Analyses of interactions between labelling types
Critical outcomes for decision-making	Awareness of labels Search or use of labels, objectively assessed using eye tracking or visual search tasks Understanding of labels, objectively assessed using measures of consumers' ability to extract nutrient information from labels, interpret this information or judge the healthfulness of foods – food healthfulness was judged by comparing foods against a nutritional standard (e.g. identifying healthier foods from a set) or based on subjective judgements (e.g. rating the association between a food and health outcomes) Food choice, involving the selection of foods with no actual exchange of money or goods and ratings of intentions to purchase/consume foods Food purchase, involving an exchange of money and goods Diets, including food, energy or nutrient intake and dietary quality
Important outcomes	Food composition (including portion size and food reformulation) Diet-related NCDs (including validated surrogate indicators) Body weight status Unintended consequences (e.g. inequity)
Not important outcomes	Undernutrition

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

The NUGAG Subgroup on Policy Actions requested an additional review to provide information on contextual factors that would be considered in the formulation of the recommendations, such as resource implications, equity and human rights, acceptability and feasibility. The contextual factors in the review included those outlined in the *WHO handbook for guideline development* (Chapters 10 and 18) *(32).* Extra questions were formulated to guide the review of contextual factors (**Annex 7**).

Evidence gathering and grading

Evidence gathered for this guideline included a:

- systematic review on the effectiveness of nutrition labelling policies:
  - effectiveness of nutrient declarations, and nutrition and health claims for improving population diets *(5)*; and
  - effectiveness of FOPL for improving population diets *(6)*;
- review of contextual factors (values, resource implications, equity and human rights, acceptability, and feasibility) *(33)*.

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The systematic review team conducted the systematic review to address the key question in PICO format (**Table 1, pp. 24**). The systematic review searches were conducted in May 2019, with automatic alerts established to identify new relevant publications up to January 2020. The searches were later re-run to capture publications published from January 2020 to July 2022. The review of contextual factors was conducted by WHO and involved literature searches for systematic reviews, primary studies and grey literature that provided information on values, resource implications, equity and human rights, acceptability, and feasibility *(33)*. Detailed descriptions of the methods for each review are available in the review publications.

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

Using the GRADE approach, there are four possible assessments for the overall certainty of the evidence for an outcome *(34)*:

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

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

For each GRADE factor, judgements were made by the systematic review team leader and discussed and cross-checked with another team member. The judgements and their rationale were recorded in GRADE evidence profile tables (**Annex 8**).

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

Formulation of the recommendations

The NUGAG Subgroup on Policy Actions discussed and assessed the evidence, drafted recommendations and reached consensus on the direction and strength of the recommendations using the GRADE approach.

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After reviewing the ratings for the certainty of evidence for each critical and important outcome, the NUGAG Subgroup on Policy Actions made a judgement on the overall certainty of evidence by reflecting on the validity, precision, consistency and applicability of the measures of effect, taking into consideration the pathway of effect of the entire body of evidence. The GRADE approach explicitly separates the process of assessing the level of certainty in the evidence from the process for making recommendations. The latter process takes into consideration several additional contextual factors (resource implications, equity and human rights, acceptability and feasibility) *(34)*. The level of certainty of evidence does not imply a particular strength of recommendation; high certainty evidence does not necessarily mean that a strong recommendation will be made, and a strong recommendation can be made with low or very low certainty evidence, depending on additional considerations.

Evidence-to-decision tables were used to structure and document the discussion of the evidence and decision criteria for the recommendations on nutrient declarations (see **Table 2**), FOPL (see **Table 3**) and interpretive FOPL (see **Table 4**). Anonymous online voting was used to arrive at an initial judgement for each factor. Following the voting, initial judgements were discussed until the group reached consensus. Based on the evidence of effectiveness and additional contextual factors, the NUGAG Subgroup on Policy Actions developed the recommendations and associated remarks by consensus.

Formulation of the good-practice statements

The NUGAG Subgroup on Policy Actions formulated two good-practice statements, one on the list of ingredients, and one on nutrition and health claims. In line with the guideline development process, the NUGAG Subgroup on Policy Actions considered the available evidence for these two labelling types. The group concluded it was not possible to formulate recommendations on these labelling types, as there was insufficient evidence of the effect of the list of ingredients on the outcomes of interest, and because of the nature of the available evidence on nutrition and health claims. The group decided to develop a good-practice statement on the list of ingredients because of the list's fundamental role in food labelling, including for consumer protection and trade, as established by Codex Alimentarius. While there was evidence available on the undesirable effects of claims, the group did not consider recommending against their use was an option, due to available Codex Alimentarius guidance on claims. The NUGAG Subgroup on Policy Actions decided to instead develop a good-practice statement that emphasized the importance of protecting consumers from the potential negative effects of claims on health.

2.3 Management of conflicts of interest

According to the rules in the WHO *Basic documents (35)*, whenever an expert or an individual provides independent advice to WHO, including participating in WHO meetings, a declaration of interest form must be submitted, and all declarations must be reviewed following the procedures for management of interests outlined in the *Guidelines for declaration of interests for WHO experts (36)*. In the case of guideline development, this includes all members of the guideline development group (for this guideline, the NUGAG Subgroup on Policy Actions), individuals who prepare systematic reviews and evidence profiles, and any other experts (including external peer reviewers) who participate in the process of guideline development in an individual capacity. Before every meeting, the members of the NUGAG Subgroup on Policy Actions, the members of the systematic review team and other experts who would be participating in the meeting were asked to submit their updated declaration of interest

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forms. In addition to distributing the declaration of interest form, the WHO Secretariat described the declaration of interest process and provided an opportunity during meetings for guideline development group members to declare any interests not provided in written form.

All declared interests were reviewed by the WHO Secretariat in consultation with the WHO Office of Compliance, Risk Management and Ethics, as necessary. A summary of declared interests and the assessment of these interests is provided in **Annex 9.**

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3. Summary of evidence

Evidence was gathered via a systematic review on the effectiveness of nutrition labelling policies *(5, 6)* and a review of contextual factors *(33)*.

3.1 Evidence on the effects of nutrition labelling policies

The evidence summarized in this section is from the systematic review on the effectiveness of nutrition labelling policies *(5, 6)*, including the GRADE evidence profiles developed as part of the review (**Annex 8**). The systematic review search was conducted in May 2019 and updated in July 2022.

Table 1 outlines the population, intervention, comparator and outcomes that guided the review.

The included studies were grouped as follows:

- nutrient declarations (*n* = 75 studies in 67 articles)
- FOPL (*n* = 242 studies in 221 articles)
- nutrition and health claims (*n* = 114 studies in 107 articles)
- interaction between labelling types (*n* = 23 studies).

3.1.1 List of ingredients

Only two studies (one RCT and one non-RCT) met the inclusion criteria. For the outcome of label use one RCT showed a lack of attention to the label, as modifications to the list of ingredients were not detected. For the outcome of food choice/intention to purchase, the non-RCT showed a marginal increase in willingness to pay when the list of ingredients was present.

The NUGAG Subgroup on Policy Actions decided to formulate a good-practice statement because of the foundational importance of the list of ingredients for other food- and health-related policies. The good-practice statement builds on the guidance available from Codex Alimentarius.

3.1.2 Nutrient declarations

The systematic review showed that, compared with when no nutrient declaration was present, nutrient declarations likely improved consumer understanding of the nutritional quality or contents of foods (moderate certainty evidence). (Evidence profile 1 in **Annex 8**). The presence of nutrient declarations may also improve the healthfulness of food choices (low certainty evidence). No RCTs reported on the outcomes of consumer awareness of nutrient declarations, search or use of labels, food purchase, food composition, body weight, diet-related NCDs or unintended consequences. For non-RCTs, the certainty of evidence for all assessed outcomes was very low.

3.1.3 FOPL

Most of the evidence included in the systematic review was on FOPL systems and assessed the effect of interpretive and non-interpretive FOPL systems.

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Interpretive FOPL provides at-a-glance guidance on the relative healthfulness and/or unhealthfulness of the food product.[1] Non-interpretive FOPL provides information on nutrient content but does not provide advice or direction on the nutritional value of the food to facilitate understanding and assist with purchasing decisions)[2] **(Annex 10).**

Comparison 1: FOPL compared with no FOPL

The systematic review found that, compared with no FOPL, FOPL likely improved consumer understanding of the nutritional quality or content of food (moderate certainty evidence), the healthfulness of food choices (moderate certainty evidence) and the healthfulness of food purchases (moderate certainty evidence). Consumer search or use of nutrition information may also be improved when FOPL is present (low certainty evidence). (Evidence profile 2 in **Annex 8**)

For the RCTs comparing FOPL with no FOPL, pooled analyses were possible for the outcomes of food choice and food purchase.

For **food choice**, the presence of any FOPL led to a small but significant reduction in choice of or intention to consume unhealthy food (standardized mean difference –0.17; 95% confidence interval (CI): –0.22 to –0.12; I^2 = 95%).

For **food purchase**, the presence of any FOPL led to a moderate but significant improvement in the healthfulness of food purchases (standardized mean difference –0.38; 95% CI: –0.54 to –0.21; I^2 = 90%).

Comparison 2: interpretive FOPL compared with non-interpretive FOPL

Compared with non-interpretive FOPL, interpretive FOPL likely improves consumer understanding of the nutritional quality or content of foods (moderate certainty evidence), the healthfulness of food choices (moderate certainty evidence) and the healthfulness of food purchases (moderate certainty evidence). Interpretive FOPL may also improve consumer search or use of nutrition information (low certainty evidence). (Evidence profile 3 in **Annex 8**)

For the RCTs comparing interpretive FOPL with non-interpretive FOPL, pooled analyses were possible for the outcomes of food choice and food purchase.

For **food choice**, the presence of interpretive FOPL led to a small, borderline significant reduction in choice of or intention to consume unhealthy food (standardized mean difference –0.09; 95% CI: –0.19 to 0.01; I^2 = 94%).

For **food purchase**, the presence of interpretive FOPL led to a small but significant improvement in the healthfulness of food purchases (standardized mean difference –0.26; 95% CI: –0.42 to –0.10; I^2 = 76%).

[1] Examples of interpretive FOPL systems included in studies in the systematic review are summary indicators (e.g. 5-colour nutrition label/Nutri-Score, Health Star Rating, Système d'Etiquetage Nutritionnel Simplifié [simplified nutrition labelling system] (SENS)), nutrient-specific FOPL (e.g. multiple traffic light label, colour-coded/traffic light Guideline Daily Amounts (GDA), tablespoons of sugar), negative nutrient-specific FOPL (e.g. warning labels) and endorsement logos (e.g. healthy choice).

[2] Examples of non-interpretive FOPL systems included in studies in the systematic review are reference intakes (e.g. % reference intake), GDA (e.g. % GDA) and calorie labelling (e.g. Facts Up Front).

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No studies assessed the effect of interpretive FOPL compared with that of non-interpretive FOPL on consumer diets, food composition change, body weight or unintended consequences.

Comparison 3: FOPL compared with modified FOPL

For comparison 3 the systematic review found limited and inconsistent evidence on modifications such as different label formats, addition of interpretive aids (such as color coding). [1]

No studies were included for the outcomes consumer awareness, food composition change, diet-related NCDs, body weight or unintended consequences.

Comparison 4: FOPL compared with different FOPL

The systematic review found no definitive best-performing interpretive FOPL system. The majority of studies found unclear or no difference in effect when comparing different interpretive systems. The harvest plots of vote counting of direction of effects for label comparisons, for critical outcomes is shown in Annex 11.[2]

No studies were included on dietary intake, food composition, body weight or unintended consequences.

3.1.4 Nutrition and health claims

The systematic review suggested that, compared with when no claim was present, nutrition and health claims likely increased consumer perceptions of the healthfulness of food (moderate certainty evidence) and increased choice of labelled foods (moderate certainty evidence). The presence of claims also likely increased purchase of labelled foods (moderate certainty evidence from one RCT) and increased the price consumers were willing to pay for labelled foods (moderate certainty evidence from one RCT).

Based on this evidence, nutrition and health claims appear to bestow a health halo effect on the foods on which they appear, leading to increased perceptions of food healthfulness and increased choice and purchase of these foods, irrespective of their nutritional quality.

3.1.5 Interaction between labelling types

Although the nutrition labelling policies within the scope of this guideline have distinct purposes, they are interdependent. Any analyses – within studies already included in the systematic review – that compared the performance of, or considered interactions between, labelling types were therefore also included in the systematic review. Data were identified for interactions between nutrient declarations and nutrition and health claims.

The evidence suggested that the presence of nutrient declarations diminishes the promotional effects of claims, and can lead to more accurate judgements about the healthfulness of foods *(5)*.

[1] Evidence profiles available in *(1)*, supplementary table 7.
[2] Evidence profiles available in *(1)*, supplementary table 8.

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3.2 Evidence on contextual factors

A total of 180 publications were included in the review of contextual factors relevant to nutrition labelling policies *(33)*. Most included publications were from high-income countries (HICs) and focused on FOPL. The overall aim of the review was to search for, identify, summarize and present information on the impact of contextual factors on implementation of nutrition labelling policies.

Forty-two publications provided evidence related to values. There was some variability in values about body weight status among study populations. In HICs, overweight and obesity were generally perceived as a serious health problem. Women were more likely than men to perceive overweight and obesity (and especially childhood obesity) as a serious health problem, as were people of lower socioeconomic status compared with those of higher socioeconomic status. In many studies from low- and middle-income countries (LMICs), overweight and obesity were perceived as indicating good health or interpreted as normal weight. However, in some countries that have perceived overweight and obesity as indicating good health, values are changing, and normal weight BMI is increasingly considered healthy. In contrast to values about body weight status, there was no variability in values about diet-related NCDs, or dental caries and erosion in children, which were perceived negatively in all identified studies. No information was identified on whether consumers value non-misleading labels.

Fifteen publications provided evidence relating to resource implications. Evidence was identified in modelling studies and government reports, from both LMICs and HICs. Most of the evidence related to the costs and cost-effectiveness of FOPL systems. All studies found nutrition labelling policies to be cost-effective. The costs of a nutrition labelling policy and expected health gains depend on country context, and the design and regulatory nature of the policy. Many of the costs, such as nutrient analysis and label design and printing, are borne by industry. These costs vary depending on the scale and scope of the labelling requirements, and the type of packaging. For governments, the costs of implementing nutrition labelling policies may include education and promotion, and monitoring and evaluation, as well as administration and enforcement where FOPL is implemented via a legal instrument.

Thirty-six publications provided evidence related to human rights and equity. Policies that require nutrition labelling that is truthful and non-misleading, and facilitates healthy dietary decisions are likely to contribute to the respect, protection and fulfilment of human rights, including the right to health and the right to accurate and appropriate information. There is limited evidence on the impact of existing nutrition labelling policies on health equity. However, differences between population groups in awareness, use and understanding of nutrition labelling may either increase or reduce existing inequities and inequalities. For example, consumer use and understanding of nutrient declarations appear to be poor, particularly for groups of low socioeconomic status, because of the complexity of the numerical information, small print size and positioning of the information on the back or side of prepackaged foods. For FOPL systems, people with poorer health literacy, and vulnerable populations who are at higher risk of diet-related NCDs, are likely to benefit the most.

A total of 67 publications provided evidence related to acceptability. The evidence showed that nutrition labelling policies are generally acceptable to stakeholders, but this depends on context and the type of labelling. The large number of countries with nutrition labelling policies shows the acceptability of such policies to government and that governments prioritize labelling as a policy to promote a healthy food environment. Nutrition labelling policies are largely acceptable to the public

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and appear to be more acceptable than, for example, marketing restrictions, and taxes on sugar-sweetened beverages and unhealthy food. Acceptability was generally lower for industry than for other stakeholders and was closely linked with factors that affect the feasibility of implementing such policies. For FOPL systems, industry appeared to prefer voluntary policies and numerical systems over more interpretive systems.

Seventy-five publications provided evidence related to feasibility. Evidence showed that facilitators of the development and implementation of nutrition labelling policies include intersectoral collaboration and stakeholder engagement, transparent processes, supporting evidence, public campaigns and civil society support. Barriers to implementation included conflicting interests, industry interference and opposition, financial costs, the lack of continued public campaigns and media support, and the complexity of developing a labelling scheme (including issues related to underlying nutrient profile models, defining "unhealthy" and deciding on the optimal system for a given context). Monitoring, evaluation and enforcement are key elements of regulatory action, including nutrition labelling policies. Barriers to monitoring, evaluation and enforcement include methodological difficulties in developing formal monitoring, evaluation and enforcement structures due to the novelty of the policy action (and the lack of country experiences or evidence to base these on), lack of formal guidelines for existing regulations, lack of transparency, and inadequate human and financial resources. Facilitators of monitoring, evaluation and enforcement include developing clear and transparent guidelines and structures, sharing responsibility for different parts of the monitoring, evaluation and enforcement of a policy (e.g. tasking national academia with evaluations, and health authorities with enforcement and monitoring of noncompliance), and allocating adequate resources.

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4. Good-practice statements and recommendations

Good-practice statement on the list of ingredients
WHO recommends the inclusion of a list of ingredients on prepackaged food, consistent with the Codex Alimentarius *General standard for the labelling of prepackaged foods (4)*.

Statement remarks

These remarks provide context for the good-practice statement and are to facilitate interpretation and implementation.

- To address nutrition-related public health priorities, countries may need to examine whether the required declarations in the list of ingredients provide sufficient detail to inform consumers and support implementation of other food policies in line with domestic laws or dietary guidance. For example, mandating the specification of partially hydrogenated oils as an ingredient and prohibiting their grouping under the nonspecific "hydrogenated oils" can support a national strategy to eliminate industrially produced *trans*-fatty acids from the food supply.
- The listing of ingredients in descending order of incoming weight, as specified in the Codex Alimentarius *General standard for the labelling of prepackaged foods (4)*, provides useful information on the predominance of food components and ingredients relevant to nutrition and health. The general standard's provisions for mandatory quantitative ingredient declaration may further support the implementation and monitoring of national policies and dietary guidance promoting consumption of, for example, vegetables, fruits, nuts and legumes.

Statement rationale

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

- The Codex Alimentarius *General standard for the labelling of prepackaged foods (4)* indicates that a list of ingredients shall appear on the label of prepackaged food.
- The list of ingredients provides information to consumers, and regulators and other operators in the food supply chain on any substance used in the production or preparation of a food and present in the final product, including food additives and possible allergenic ingredients.
- The list of ingredients supports the implementation of, monitoring of compliance with, and enforcement of other nutrition labelling policies, including policies on nutrient declarations, FOPL, and nutrition and health claims.
- The list of ingredients also supports the implementation of, monitoring of compliance with, and enforcement of other food environment policies, including policies to restrict food marketing, policies on food taxes and subsidies, policies on school food standards, policies on public food procurement and policies on reformulation. For example, requiring the specification of partially hydrogenated oils in the list of ingredients can support policies to eliminate industrially produced *trans*-fatty acids, which are a risk factor for cardiovascular diseases.

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WHO recommendation on nutrient declarations
WHO recommends a policy to implement nutrient declarations. (Strong recommendation)

Recommendation remarks

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

- In line with the definition provided by the Codex Alimentarius *Guidelines on nutrition labelling (1)*, a nutrient declaration means a standardized statement or listing of the nutrient content of a food.
- Consistent with the Codex Alimentarius *Guidelines on nutrition labelling (1)*, nutrient declarations should be mandatory for all prepackaged food for which nutrition or health claims (as defined in the Codex Alimentarius *Guidelines for use of nutrition and health claims (3)*) are made. Nutrient declarations should be mandatory for all other prepackaged food, except where national circumstances would not support such declarations. Certain foods may be exempted from displaying nutrient declarations, for example, on the basis of nutritional or dietary insignificance or small packaging.
- The Codex Alimentarius *Guidelines on nutrition labelling (1)* recognize the need for declaration of any other nutrient considered to be relevant for maintaining a good nutritional status. Countries should determine whether the proposed nutrient declarations provide information required by domestic laws and information relevant to national dietary guidelines. For example, some countries have implemented mandatory nutrient declarations for nutrients other than those proposed to be mandatory in the Codex Alimentarius *Guidelines on nutrition labelling (1)*, such as *trans*-fatty acids, added sugars, dietary fibre, and certain vitamins and minerals.
- In line with the Codex Alimentarius *Guidelines on nutrition labelling (1)*, countries may choose to require specific features that enhance the legibility of the nutrient declaration, including features related to format, font and contrast, and may choose to consider using standardized serving sizes.

Recommendation rationale

The recommendation was formulated by the NUGAG Subgroup on Policy Actions based on several key considerations (below and **Table 2, pp. 35**).

- There was moderate certainty evidence on the effect of nutrient declarations, when compared with no nutrient declaration, on consumer understanding and low certainty evidence on their effect on food choice/intention to purchase.
- The group judged that the overall balance between desirable and undesirable effects probably favours implementing a policy on nutrient declarations. The group also judged that implementing a policy on nutrient declarations is acceptable and feasible, and likely to contribute to the respect, protection and fulfilment of human rights, particularly the right to information.

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- Evidence on the interaction between labelling types suggests that the presence of nutrient declarations diminishes the promotional effects of claims, and can lead to more accurate judgements about the healthfulness of food *(5)*.
- In line with the Codex Alimentarius *Guidelines on nutrition labelling (1)*, nutrient declarations are the basis for implementing, monitoring compliance with and enforcing other nutrition labelling policies, such as policies to implement FOPL and regulate nutrition and health claims.

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

Decision criteria and judgement	Additional considerations
Magnitude of desirable effects of implementing nutrient declarations: moderate	When comparing nutrient declarations with no nutrient declaration, the group judged the magnitude of the desirable effects to be moderate. The group agreed the desirable effect on consumer understanding was relatively consistent across the research evidence. As food environments are complex and myriad factors influence the outcomes of interest, the group noted the need to be realistic about the extent to which any one intervention can affect the outcomes of interest on its own. In their judgement, the group also considered the findings on interactions between labelling types. This included evidence demonstrating that the presence of nutrient declarations diminishes the promotional effects of claims and can lead to more accurate judgements about the healthfulness of foods.
Magnitude of undesirable effects of implementing nutrient declarations: trivial	The review did not identify any undesirable effects of implementing nutrient declarations on health outcomes. The group judged the magnitude of undesirable effects as trivial.
Balance of desirable and undesirable effects: probably favours the intervention	Based on the available evidence, country experience and discussions on the results of additional comparisons, the group judged the balance of desirable and undesirable effects to probably favour implementing nutrient declarations.
Overall certainty of evidence: low to moderate	There was moderate certainty evidence that, compared with no nutrient declaration, nutrient declarations positively influence consumer understanding. There was low certainty evidence that nutrient declaration positively influences food choice/intention to purchase.
Cost-effectiveness: probably favours the intervention	No direct evidence was identified on the cost-effectiveness of nutrient declarations.
Resources required: varies	The group noted costs considered should be those to the government and not to other actors (e.g. industry). Costs depend on the country context, policies in place and the regulatory nature of the policy.
Impact of implementing nutrient declarations on equity: varies	The group noted understanding and use of nutrition labelling requires health literacy, which may mean that nutrition labelling may favour those who are most literate.

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Impact of implementing nutrient declarations on human rights: likely to contribute to the respect, protection and fulfilment of human rights	The group noted the likely impact of policies on human rights. The group's judgement was based on the right to information about the food available for consumption.
People's values related to the outcomes of implementing nutrient declarations: probably no important uncertainty or variability	The group's judgement related to people's values related to diet-related NCDs, rather than people's values related to nutrition labelling policies. No evidence was identified on whether consumers value non-misleading labels.
Acceptability of implementing nutrient declarations to key actors: yes	The group noted that the existence of policies to implement nutrient declarations in many countries shows the acceptability of such policies. Acceptability varies by stakeholder, with lower acceptability to the food industry and higher acceptability to consumers.
Feasibility of implementing nutrient declarations: yes	The group noted that, like acceptability, the existence of policies to implement nutrient declarations in many countries shows the feasibility of such policies. Codex Alimentarius provides clear guidance to countries on developing nutrient declarations. Nutrient declarations are the basis for implementing, monitoring compliance with and enforcing other nutrition labelling policies, such as policies to regulate nutrition and health claims or policies on supplementary nutrition information (including FOPL).

WHO recommendations on FOPL
3. WHO recommends a policy to implement FOPL. (Strong recommendation) 4. WHO recommends implementation of interpretive FOPL in preference to non-interpretive FOPL. (Strong recommendation)

Remarks for FOPL recommendations 1 and 2

The following remarks provide context for the recommendations and are to facilitate interpretation and implementation.

- Consistent with the WHO *Guiding principles and framework manual for front-of-pack labelling for promoting healthy diets (2)*, FOPL refers to nutrition labelling systems that:
  - are presented on the front of food packages (in the principal field of vision) and can be applied across the packaged retail food supply;
  - comprise an underpinning nutrient profile model that considers the overall nutritional quality of the product or the nutrients of concern for NCDs (or both); and
  - present simple, often graphic, information on the nutrient content or nutritional quality of products, to complement the more detailed nutrient declarations usually provided on the back of food packages.

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- The purpose of FOPL systems is to increase consumer understanding of the nutritional value of food and assist consumer interpretation of the nutrient declaration *(1)*. However, FOPL systems differ in their means of achieving this. For example, some FOPL systems inform consumers about high levels of nutrients that increase the risk of diet-related NCDs, (e.g. warning labels), whereas others inform consumers about the overall nutritional value of a food product (e.g. summary indicators).
- Interpretive FOPL provides at-a-glance guidance on the relative healthfulness and/or unhealthfulness of the food product. Examples of interpretive FOPL systems included in studies in the systematic review are summary indicators (e.g. 5-colour nutrition label/Nutri-Score, Health Star Rating, SENS), nutrient-specific FOPL (e.g. multiple traffic light label, colour-coded/traffic light GDA, tablespoons of sugar); negative nutrient-specific FOPL (e.g. warning labels) and endorsement logos (e.g. health choice).
- Non-interpretive FOPL provides information on nutrient content but does not provide advice or direction on the nutritional value of the food to facilitate understanding and assist with purchasing decisions. Examples of non-interpretive FOPL systems included in studies in the systematic review are reference intakes (e.g. % reference intake), GDA (e.g. % GDA) and calorie labelling (e.g. Facts Up Front).
- Evidence showed that some FOPL systems (i.e. endorsement logos) may be interpreted like claims, with potential for misinterpretation. FOPL systems that signpost less healthy foods perform better than those that only highlight healthier choices *(6)*.
- Consistent with the WHO *Guiding principles and framework manual for front-of-pack labelling for promoting healthy diets (2)*, governments should lead the development, implementation, monitoring and evaluation of FOPL, which should be in line with health and nutrition policies. The Codex Alimentarius principles for establishment of FOPL *(1)* also recognize that FOPL systems should be government-led.
- The chosen FOPL system should support the government's regulatory objectives, and the intended outcomes of the system should be consistent with domestic laws and national or regional dietary guidance and health and nutrition policies.
- FOPL systems depend on an underlying nutrient profile model. In line with the WHO *Guiding principles and framework manual for front-of-pack labelling for promoting healthy diets (2)*, governments should have ultimate responsibility and authority for the nutrient profile model that underpins a FOPL system.
- FOPL should be applied universally, to avoid the selective display of the FOPL system on a subset of food products, which limits consumers' ability to compare food products *(3, 7)*.
- Local adaptation and user-testing may be useful for meeting the specific needs of a population. They should be conducted where feasible or required by a government to inform policy development.
- FOPL is not appropriate for some prepackaged foods, including foods specially manufactured for infants and young children, and infant and follow-up formula.

Rationale for FOPL recommendation 1

The recommendation was formulated by the NUGAG Subgroup on Policy Actions based on several key considerations (below and **Table 3, pp. 38**).

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- There was moderate certainty evidence on the effect of FOPL (including summary indicators, nutrient-specific interpretive FOPL, negative nutrient-specific FOPL, endorsement logos and non-interpretive FOPL), when compared with no FOPL, on consumer understanding, food choice/intention to purchase and food purchase.
- The group judged that the overall balance between desirable and undesirable effects favours implementing a policy on FOPL. The group also judged that implementing a policy on FOPL is cost-effective and feasible, and likely to contribute to the respect, protection and fulfilment of human rights, particularly the right to information.
- Implementing FOPL to support consumer understanding is consistent with the Codex Alimentarius *Guidelines on nutrition labelling (3)*.

Rationale for FOPL recommendation 2

The recommendation was formulated by the NUGAG Subgroup on Policy Actions based on several key considerations (below and **Table 4, pp. 39**).

- There is moderate certainty evidence on the effect of interpretive FOPL, when compared with non-interpretive FOPL, on consumer understanding, food choice/intention to purchase and food purchase.
- The group judged that the overall balance between desirable and undesirable effects favours implementing a policy on interpretive FOPL. The group also judged that implementing interpretive FOPL is feasible, with negligible costs, and contributes to the respect, protection and fulfilment of human rights, particularly the right to information.

Table 3. Additional considerations by the NUGAG Subgroup on Policy Actions to determine the direction and strength of FOPL recommendation 1

Decision criteria and judgement	Additional considerations
Magnitude of desirable effects of implementing FOPL: moderate	When comparing FOPL with no FOPL, the group judged the magnitude of the desirable effects to be moderate. As food environments are complex and myriad factors influence the outcomes of interest, the group noted the need to be realistic about the extent to which any one intervention can affect the outcomes of interest on its own.
Magnitude of undesirable effects of implementing FOPL: varies	The group judged the magnitude of undesirable effects to be variable. The group noted that FOPL affects food choice but does not necessarily lead to choice of a healthy option. The underlying nutrient profile model is important in the classification of products.
Balance of desirable and undesirable effects: probably favours the intervention	Based on the available evidence, country experience and discussions on the results of additional comparisons, the group judged the balance of desirable and undesirable effects to probably favour implementing FOPL.
Overall certainty of evidence: moderate	The evidence is not based on a set of independent outcomes but on a hierarchy of outcomes. There was moderate certainty evidence that FOPL (including summary indicators, nutrient-specific interpretive FOPL, negative nutrient-specific FOPL, endorsement logos and non-interpretive FOPL), when compared with no FOPL, positively affects consumer understanding, food choice/intention to purchase and food purchase.

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	Considering the hierarchy of outcomes, this can, in turn, influence consumption of products displaying FOPL and overall diet.
Cost-effectiveness: probably favours the intervention	Modelling consistently showed FOPL was cost-effective.
Resources required: moderate costs	The group noted costs considered should be those to the government and not to other actors (e.g. industry). Costs depend on the country context, policies in place and the regulatory nature of the policy. The group noted that there are strategies to reduce costs (e.g. adapting a FOPL system from another country). Many costs are borne by industry.
Impact of implementing FOPL on equity: varies	The group noted that FOPL could reduce health inequities, since those most likely to benefit from FOPL include populations with low literacy. The extent of the impact of FOPL on health equity depends on the specific FOPL system.
Impact of implementing FOPL on human rights: likely to contribute to the respect, protection and fulfilment of human rights	The group noted the likely impact of policies on human rights. The group's judgement was based on the right to information about the food available for consumption.
People's values related to the outcomes of implementing FOPL: probably no important uncertainty or variability	The group's judgement related to people's values related to diet-related NCDs, rather than people's values related to nutrition labelling policies. No evidence was identified on whether consumers value non-misleading labels.
Acceptability of implementing FOPL to key actors: probably yes	The group noted that the existence of FOPL in some countries shows the acceptability of such policies. In some instances, industry may be supportive of FOPL (e.g. industry may prefer one federal policy instead of different policies in different states or be supportive of policies that create a level playing field). Acceptability to industry is very dependent on the scheme and whether its mandatory or voluntary.
Feasibility of implementing FOPL: yes	The group noted that, like acceptability, the existence of FOPL in some countries shows the feasibility of such policies.

Table 4. Additional considerations by the NUGAG Subgroup on Policy Actions to determine the direction and strength of FOPL recommendation 2

Decision criteria and judgement	**Additional considerations**
Magnitude of desirable effects of implementing interpretive FOPL: moderate	When comparing interpretive FOPL with non-interpretive FOPL, the group judged the magnitude of the desirable effects of interpretive FOPL to be moderate.

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Magnitude of undesirable effects of implementing interpretive FOPL: trivial	No undesirable effects were identified.
Balance of desirable and undesirable effects: favours the intervention	When comparing interpretive FOPL with non-interpretive FOPL, the group judged the balance of desirable and undesirable effects to clearly favour implementing interpretive FOPL.
Overall certainty of evidence: moderate	The evidence is not based on a set of independent outcomes but on a hierarchy of outcomes. There was moderate certainty evidence that interpretive FOPL, when compared with non-interpretive FOPL, positively affects consumer understanding, food choice/intention to purchase and food purchase. Considering the hierarchy of outcomes, this can, in turn, influence consumption of products displaying interpretive FOPL and overall diet.
Cost-effectiveness: probably favours the intervention	No direct evidence was identified on the cost-effectiveness of implementing interpretive FOPL compared with non-interpretive FOPL.
Resources required: negligible costs and savings	No direct evidence was identified on the cost of implementing interpretive FOPL compared with non-interpretive FOPL. The group noted costs considered should be those to the government and not to other actors (e.g. industry). The group's judgement was of incremental costs.
Impact of implementing interpretive FOPL on equity: probably increased	The group noted that interpretive FOPL could reduce health inequities, since those most likely to benefit from interpretive FOPL include populations with low literacy. The extent of the impact of interpretive FOPL on health equity depends on the specific FOPL system.
Impact of implementing interpretive FOPL on human rights: likely to contribute to the respect, protection and fulfilment of human rights	The group noted the impact of policies on human rights. The group's judgement was based on the right to information about the food available for consumption.
People's values related to the outcomes of implementing interpretive FOPL: no important uncertainty or variability	The group's judgement related to people's values related to diet-related NCDs, rather than people's values related to nutrition labelling policies. No evidence was identified on whether consumers value non-misleading labels.
Acceptability of implementing interpretive FOPL to key actors: varies	The group noted acceptability is dependent on the type of scheme.
Feasibility of implementing interpretive FOPL: yes	The group noted that the existence of interpretive FOPL in some countries shows the feasibility of such policies.

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Good-practice statement on nutrition and health claims

WHO recommends protecting consumers from false, misleading and/or deceptive nutrition and health claims on food, through regulation of the use of nutrition and health claims.

Statement remarks

These remarks provide context for the good-practice statement and are to facilitate interpretation and implementation.

- To reduce the potential negative impact of nutrition and health claims on consumer understanding, food choice, food purchase and diets, policies to regulate such claims should:
    - be in line with relevant Codex Alimentarius guidelines *(4)*;
    - set conditions on the use of nutrition and health claims, including through the use of nutrient profile models;
    - include a substantiation process to prevent inappropriate claims; and
    - align with and support national nutrition, health and consumer protection policies, including other nutrition labelling policies.
- Nutrition and health claims shall not be permitted on foods for infants and young children, except where specifically provided for in relevant Codex Alimentarius standards or domestic laws.

Statement rationale

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

- The group took into consideration the Codex Alimentarius *General guidelines on claims (8)* and *Guidelines for use of nutrition and health claims (3)*.
- Nutrition and health claims influence consumer understanding of the nutritional content or quality of food (moderate certainty of evidence), food choice (moderate certainty of evidence), food purchase (moderate certainty of evidence) and diets (very low certainty of evidence).
- Nutrition and health claims are frequently used as a marketing tool, and, if left unregulated, their use can mislead consumers.
- Evidence shows misleading claims are made on foods that are high in saturated fatty acids, *trans*-fatty acids, sugars and/or sodium, and that claims increase the perceived healthfulness of foods, regardless of their nutritional quality. Claims may, therefore, bestow a health halo effect on the foods on which they appear *(6)*.

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5. Implementation considerations

Key implementation considerations were identified through the systematic reviews *(5, 6)*, the review of contextual factors *(33)*, existing implementation resources (see section 5.8) and the deliberations of the NUGAG Subgroup on Policy Actions during the evidence-to-decision discussions (see **Tables 2–4**).

5.1 Overarching considerations

A comprehensive policy approach is needed to create enabling and supportive food environments, and actions should be considered in the context of the myriad other individual, social and environmental influences on nutrition. The recommendations in this guideline should therefore be considered together with those in other WHO guidelines on policies to improve the food environment, as well as those in WHO dietary guidelines (see section 5.8).

To ensure their effectiveness, nutrition labelling policies should support a government's regulatory objectives and be consistent with domestic laws and regulatory processes, as well as national or regional dietary guidelines and health and nutrition policies. Several other implementation considerations are relevant to all the nutrition labelling policies considered in this guideline (i.e. the list of ingredients, nutrient declarations, FOPL, and nutrition and health claims). These include government-led engagement and consultation (with clearly defined roles and responsibilities for involved actors), advocacy and public education, and country-specific governance frameworks (including implementation, enforcement and continued monitoring for compliance, as well as mechanisms to manage conflicts of interest and to safeguard public health policies).

5.2 Relationships between nutrition labelling policies and other food environment policies

Fig. 3 shows the relationships between the nutrition labelling policies considered in this guideline (i.e. the list of ingredients, nutrient declarations, FOPL, and nutrition and health claims), and their relationship to other complementary food environment policies.

As per provisions in the Codex Alimentarius *General standard for the labelling of prepackaged foods* the list of ingredients is foundational for implementing, monitoring compliance with and enforcing other nutrition labelling policies and other food environment policies, including policies to restrict food marketing, food taxes and subsidies, policies on school food standards, policies on public food procurement and policies on reformulation. The provisions in the Codex Alimentarius *Guideline on nutrition labelling* for mandatory nutrient declarations may further support the implementation and monitoring of national policies and dietary guidance promoting consumption of, for example, vegetables, fruits, nuts and legumes.

Nutrient declarations should be mandatory for all prepackaged food for which nutrition and health claims (as defined in the Codex Alimentarius *Guidelines for use of nutrition and health claims (3)*) are made. Evidence on the interaction between labelling types suggests that the presence of nutrient declarations diminishes the promotional effects of claims, and can lead to more accurate judgements about the healthfulness of foods *(5).* Nutrient declarations also support implementation and monitoring of FOPL systems.

Evidence suggests FOPL may counteract the effects of claims when consumers' information search is limited to the front of packages.

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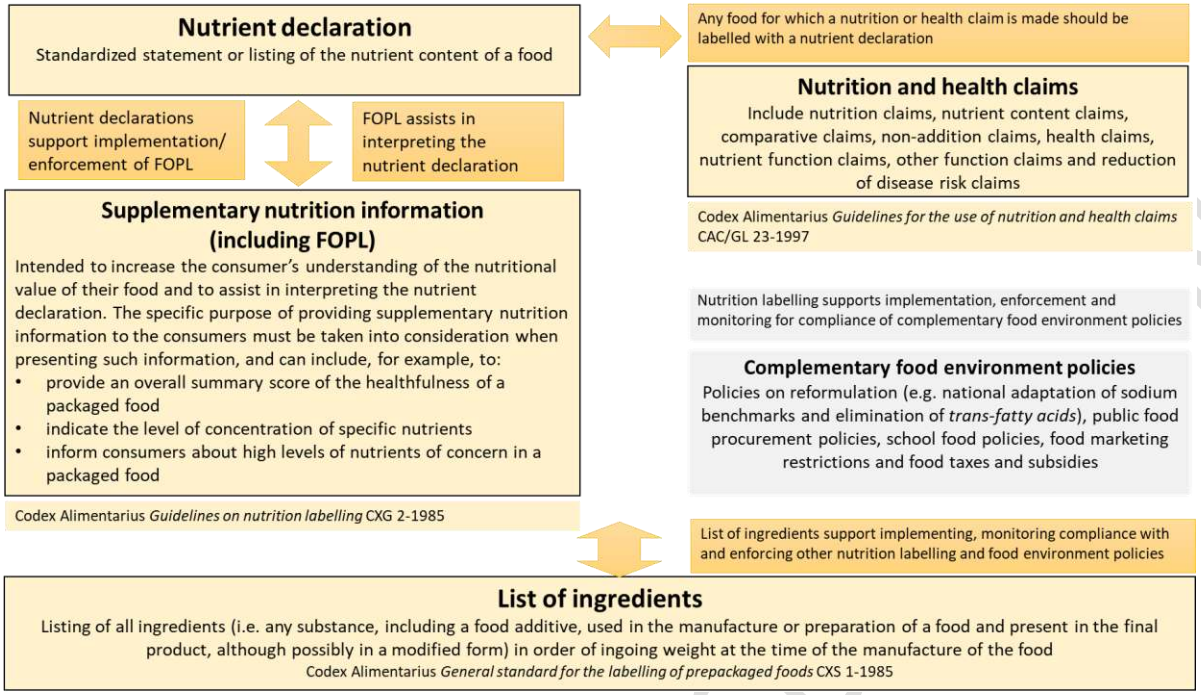
Fig. 3. Relationships between nutrition labelling policies and other food environment policies



FOPL: front-of-pack labelling.

5.3 Aligning FOPL systems with their intended purpose

The objective of FOPL is to provide easy to understand at-a-glance nutrition information, helping consumers make informed food purchases and healthier eating decisions. However, different FOPL systems, serve different purposes. For example, warning labels alert consumers to high levels of nutrients that can increase the risk of diet-related NCDs, such as total fat, saturated fatty acids, *trans*-fatty acids, sugars and sodium. These labels highlight potentially unhealthy options but do not consider beneficial nutrients like fibre or essential vitamins and minerals. In contrast, summary indicators offer an overall assessment of a food's nutritional quality by assigning a score based on positive points for health promoting ingredients and negative points for components that pose health risks. Depending on the nutrient profiling and scoring systems used, this can allow "ultra-processed foods" (typically high in saturated fatty acids, *trans*-fatty acids, free sugars and sodium and/or which contain non-sugar sweeteners), to receive a favorable score when the food also contains beneficial nutrients.

In this way, the label may be seen to depict some "ultra-processed foods" as healthful *(37)*. There may be ways to prevent this, such as by incorporating the level of food processing into the nutrient profile model used for FOPL *(38)* or implementing FOPL systems that highlight high levels of ingredients and food components that post health risks. The Pan American Health Organization has developed a nutrient profile model for FOPL systems that aims to help consumers meet the recommended nutrient intake goals of WHO, and provides thresholds for identifying products high in total fat, saturated fatty acids, *trans*-fatty acids, sugars and sodium *(39)*.

Given the systematic review found no definitive best-performing interpretive FOPL system and highlighted inconsistencies between studies (**Annex 11**) as well as the limited evidence available on modifications such as different warning label formats, adding interpretive aids (e.g. colour coding or

the inclusion of serving size information or energy equivalents to an endorsement logos), it is crucial to select a FOPL system that aligns with its intended purpose.

To support countries to develop, implement, monitor and evaluate FOPL systems, WHO published the *Guiding principles and framework manual for front-of-pack labelling for promoting healthy diets (2)*. The manual outlines the key considerations and steps that countries need to take in developing a FOPL system.

Governments should lead the classification of foods as being subject, or not, to FOPL regulation, to best align the policy with the government's regulatory objectives and other relevant government policies and initiatives.

In line with the recommendation in this guideline, FOPL should be applied universally, to avoid the selective display of the FOPL system on a subset of food products, which limits consumers' ability to compare food products *(3, 7)*.

5.4 Resource considerations

The resource considerations in this guideline are based on consideration of the resources of governments and not those of other actors (e.g. industry). The costs of nutrition labelling policies will depend on the country context, policies in place and the regulatory nature of the policy. No direct evidence was identified on the cost-effectiveness of nutrient declarations. However, FOPL policies were consistently found to be cost-effective. For example, in 2017, WHO identified cost-effective policies for reducing the burden of unhealthy diets (specifically, by reducing dietary sodium) as "best buys" in Appendix 3 of the Global Action Plan for the Prevention and Control of Noncommunicable Diseases 2013–2020 *(40)*. In 2023, when the best buys were updated, FOPL policies (as part of comprehensive nutrition labelling policies for facilitating consumers' understanding and choice of food for healthy diets) were determined to be cost-effective *(41)*.

In developing a FOPL system, careful consideration should be given to the procedural requirements of policy development, to how (and by whom) the policy is intended to be implemented, monitored and enforced and to the approaches used to evaluate the FOPL system's effectiveness. Establishing an appropriate governance structure is essential to support the FOPL system throughout its development, implementation and ongoing monitoring and evaluation phases. An appropriate governance structure will help ensure that the FOPL system remains robust, transparent, effective and responsive to consumer needs and public health goals.

Effectively implementing a FOPL system requires a well-resourced and comprehensive consumer education programme. Such a programme should focus on educating consumers about how to interpret the FOPL accurately and respond effectively to the information provided, as part of broader national nutrition messaging and dietary guidance efforts.

There may be strategies that reduce the costs of implementing FOPL (e.g. adapting existing systems *(2)*).

5.5 Equity considerations

Labelling that is truthful and non-misleading and facilitates healthy dietary decisions can contribute to the respect, protection and fulfilment of human rights. Differences between population groups in

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awareness, use and understanding of nutrition labelling may either increase or reduce existing inequities and inequalities *(33)*.

To reduce the risk of increasing health inequity, nutrition labelling should be understood by consumers with varying degrees of literacy and numeracy. Evidence suggests that FOPL may reduce health inequalities resulting from numerical nutrient declarations *(33)*.

Nutrition and health claims are frequently used as a marketing tool, and, if left unregulated, their use can mislead consumers. Claims increase the perceived healthfulness of foods, regardless of their nutritional quality. Claims may, therefore, bestow a health halo effect on the foods on which they appear. This may also lead to price premiums for foods displaying certain claims.

5.6 Acceptability considerations

In line with the Codex Alimentarius *General standard for the labelling of prepackaged foods (4)*, a list of ingredients shall be declared on the label. The existence of nutrient declarations and FOPL in many countries (see section 1.2) suggests a high level of acceptability of these nutrition labelling policies. However, acceptability varies by stakeholder and nutrition labelling type. For example, the acceptability of nutrient declarations is lower for the food industry than consumers. Acceptability of nutrition labelling policies to industry may be dependent on the nutrition labelling type (e.g. interpretive or non-interpretive FOPL) and how it is regulated (i.e. mandatory or voluntary).

5.7 Feasibility considerations

As with acceptability, the existence of nutrition labelling policies in many countries (see section 1.2) suggests a high level of feasibility.

Facilitators of the development and implementation of nutrition labelling include strong political leadership, intersectoral collaboration, supporting evidence, community support, and the use of existing laws, government regulatory mechanisms and administration capacity.

A well-resourced and targeted public education campaign and consumer engagement can increase understanding and use of nutrition labelling *(2)*.

Conversely, barriers to developing and implementing nutrition labelling include the complexity of developing a labelling system (including issues related to underlying nutrient profile models, defining what foods or categories of foods are unhealthy and deciding on the optimal system for a given context) *(2)*, conflicting interests, industry interference *(42)* and opposition, and financial costs.

5.8 Additional resources

As noted, the considerations discussed in this section are not exhaustive, and existing global and regional implementation resources (**Box 1**) may be used and consulted when translating the recommendations in this guideline to actions.

The guidelines on policies to improve the food environment can be used in conjunction with available tools and frameworks, including the nutrient profile models and guidance developed by the WHO regional offices.

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Box 1. Additional resources for development and implementation of nutrition labelling policies

Global

Guiding principles and framework manual for front-of-pack labelling for promoting healthy diets (2)

Implementing nutrition labelling policies: a review of contextual factors (33)

Nutrition labelling: policy brief (43)

Report of the Commission on Ending Childhood Obesity (44)

Regional

Front-of-package labeling as a policy tool for the prevention of noncommunicable diseases in the Americas (39)

Manual to develop and implement front-of-pack nutrition labelling: guidance for countries on the selection and testing of evidence-informed front-of-pack nutrition labelling systems in the WHO European Region (45)

What is the evidence on the policy specifications, development processes and effectiveness of existing front-of-pack food labelling policies in the WHO European Region? (46)

WHO guidelines on policies to improve the food environment

Fiscal policies to promote health diets: WHO guideline (47)

Policies to protect children from the harmful impact of food marketing: WHO guideline (48)

WHO guidelines on school food and nutrition policies (49)

WHO dietary guidelines

Guideline: sodium intake for adults and children (50)

Guideline: sugars intake for adults and children (51)

Total fat intake for the prevention of unhealthy weight gain in adults and children: WHO guideline (52)

Saturated fatty acid and trans-fatty acid intake for adults and children: WHO guideline (53)

Carbohydrate intake for adults and children: WHO guideline (54)

Use of non-sugar sweeteners: WHO guideline (55)

WHO guidelines on use of low-sodium salt substitutes (56)

WHO nutrient profile models

Pan American Health Organization nutrient profile model (57)[a]

[a] This regional nutrient profile model has been adopted by countries implementing front-of-pack warning labels.

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6. Research gaps

Based on the results of the systematic review, the review of contextual factors, the discussions of the NUGAG Subgroup on Policy Actions and input received during peer review and public consultation, a number of research gaps and considerations were identified [to be added]. They reflect understudied thematic areas and geographic locations, as well as methodological issues. These will be important when updating this guideline, and for further advocacy and action on nutrition labelling policies.

6.1 Overarching research gaps

Much of the research identified in the systematic review focused on immediate outcomes (e.g. consumer understanding, food choice or intentions to purchase or consume food). Limited evidence was available for longer-term outcomes (e.g. diet-related NCDs, body weight status).

The NUGAG Subgroup on Policy Actions noted several challenges to assessing longer-term health outcomes.

- The policies under consideration may have been only recently introduced, whereas changes to outcomes such as body weight/BMI/obesity and diet-related NCDs occur gradually.
- There are methodological challenges in disentangling the impact of nutrition labelling policies from the complex array of factors that contribute to outcomes such as body weight/BMI/obesity and diet-related NCDs.
- There is a need to be realistic about the extent to which any one intervention can be expected to impact outcomes such as body weight/BMI/obesity and diet-related NCDs on its own.

The limited evidence available and challenges noted by the NUGAG Subgroup on Policy Actions highlight key knowledge gaps and data challenges to strengthen the evidence base for future updates to this guideline.

Additional real-world trials on the impact of implemented nutrition labelling policies would be beneficial. Studies on other factors that may affect choices in real-life shopping situations, including taste preferences; brand attitudes and attachments; availability, accessibility and affordability of food; food knowledge and skills, and resources to store and prepare food would also be beneficial.

Contextual factors

Most publications included in the review of contextual factors were from HICs and focused on FOPL. No studies were identified that examined nutrition labelling policies from a human rights perspective, and few studies were identified that specifically examined the impact of nutrition labelling policies on health (in)equity or health (in)equality. Future studies should therefore include data disaggregated by characteristics such as socioeconomic status, sex, gender and rurality.

6.2 Considerations for the design of future evaluations

The inconsistency of effects across studies reflects differences in study design in the outcomes being assessed, the outcome measure used, the FOPL systems being compared and the study population. The differences in the systems tested and methods used across studies made comparisons and syntheses difficult. Although the largest number of RCTs favoured summary indicator systems over other interpretive FOPL, these studies tended to ask people to rank or choose foods based on relative healthfulness. This measure may favour labels that display information on food healthfulness over other labelled that only depict food unhealthfulness. Some studies use summary scores developed for

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summary indicator systems as metrics to rate healthfulness and to compare different FOPL systems. This may have favoured summary indicator systems in some comparisons against other FOPL systems that are not based on summary scores.

Studies that found an effect favouring summary indicator systems were mostly conducted in HICs, where these types of systems have been implemented on a voluntary basis.

The analyses by socioeconomic status, sex, gender and rurality were not possible due to limited data. Where possible, future studies should include data disaggregated by these characteristics to enable analysis of the impact of labelling on health equity.

Other considerations for the design and reporting of future evaluations include a need for more detailed information on policies (e.g. mandatory legislation and regulations, enforcement mechanisms or voluntary initiatives); this would allow more detailed examination of policy design elements that may impact effectiveness.

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7. Uptake, monitoring and updating of the guideline

This guideline will be disseminated to Member States through the networks of WHO regional offices and country offices, WHO collaborating centres, United Nations partner agencies and civil society agencies, relevant nutrition webpages on the WHO website[1] and the electronic mailing lists of the WHO Department of Nutrition and Food Safety, among others. The guideline will also be disseminated at relevant global, regional and national meetings, including the meetings of the Codex Committee on Food Labelling[2] and the Global Action Network on Nutrition Labelling.[3] Specifically, it will be used to support policy dialogues being held as part of the WHO's work to accelerate action to stop obesity. The guideline is an important part of the technical package to support implementation of the recommendations for the prevention and management of obesity over the life course, and related targets adopted by the Seventy-fifth World Health Assembly.[4]

The impact of this guideline can be evaluated by assessing its adoption and adaptation across countries. Evaluation at the global level will be through the periodically conducted Global Nutrition Policy Review and the WHO NCD Country Capacity Survey, published through the WHO Global database on the Implementation of Food and Nutrition Action (GIFNA)[5] and will also consider independent researcher input. GIFNA is a centralized platform developed by the WHO Department of Nutrition and Food Safety for sharing information on nutrition actions in public health practice implemented around the world. GIFNA currently contains information on thousands of policies (including legislation), nutrition actions and programmes in all WHO Member States. It includes data and information from many sources, including the first and second WHO global nutrition policy reviews conducted in 2009–2010 and 2016–2017, respectively *(58, 59)*. By providing programmatic implementation details, specific country adaptations and lessons learned, GIFNA serves as a platform for monitoring and evaluating how policy guidelines are being translated and adapted in various countries. The WHO NCD Country Capacity Survey is a global survey of all Member States that provides a periodic assessment of national capacity for NCD prevention and control, including in several nutrition-related areas.

In line with the *WHO handbook for guideline development (32)*, the recommendations in this guideline will be regularly updated, based on new data and information. The WHO Department of Nutrition and Food Safety will be responsible for coordinating updates of the guideline, following the formal procedure described in the *WHO handbook for guideline development (32)*. When the guideline is due for review, WHO will welcome suggestions for additional questions that could be addressed in the guideline.

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

[1] https://www.who.int/teams/nutrition-and-food-safety
[2] https://www.fao.org/fao-who-codexalimentarius/committees/committee/en/?committee=CCFL
[3] https://www.who.int/news-room/events/detail/2019/02/09/default-calendar/inaugural-meeting-nutrition-labelling
[4] https://apps.who.int/gb/ebwha/pdf_files/WHA75/A75_10Add6-en.pdf
[5] https://gifna.who.int/

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Annex 1.
Global calls to action and commitments related to food environment policies

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

- Comprehensive Implementation Plan on Maternal, Infant and Young Child Nutrition;
- Global Action Plan for the Prevention and Control of Noncommunicable Diseases 2013–2020;
- Political Declaration of the High-level Meeting of the General Assembly on the Prevention and Control of Non-Communicable Diseases held in New York in September 2011 and the outcome document (A/RES/68/300) of the High-level Meeting of the General Assembly on the Prevention and Control of Non-Communicable Diseases held in New York in July 2014;
- recommendations of the Commission on Ending Childhood Obesity established by the WHO Director-General in May 2014;
- commitments of the Rome Declaration on Nutrition and recommended actions in the Framework for Action, which recommends a set of policy options and strategies to promote diversified, safe and healthy diets at all stages of life; these were adopted by the Second International Conference on Nutrition in 2014 and endorsed by the 136th session of the WHO Executive Board (in January 2015) and the Sixty-eighth World Health Assembly (in May 2015), which called on Member States to implement the commitment of the Rome Declaration on Nutrition across multiple sectors;
- goals of the United Nations Decade of Action on Nutrition (2016–2025), declared by the United Nations General Assembly in April 2016, which include increased action at the national, regional and global levels to achieve the commitments of the Rome Declaration on Nutrition by implementing policy options included in the Framework for Action and evidence-informed programme actions;
- acceleration plan to stop obesity adopted at the Seventy-fifth World Health Assembly in May 2022, together with the intermediate outcome and process targets; and
- 2030 Agenda on Sustainable Development and the Sustainable Development Goals, particularly Goal 2 (“zero hunger”) and Goal 3, Target 4 (“reduce by one third premature mortality from non-communicable diseases through prevention and treatment”).

Annex 2.
WHO Secretariat

[To be added before finalization]

Annex 3.
Members of the WHO Steering Committee (headquarters)

[To be added before finalization]

Annex 4.
Members of the WHO NUGAG Subgroup on Policy Actions

[To be added before finalization]

Annex 5.
External resource people

[To be added before finalization]

Annex 6.
External peer review group

[To be added before finalization]

Annex 7.
Guidance questions for the review of contextual factors

Factor	Guidance questions
Values	• What are the values people affected by the intervention assign to the intervention health outcomes?
Resource implications	• What is the value for money of the intervention in terms of cost–benefit ratio/cost-effectiveness/cost utility, including the impact on national/global health care costs in the short term and long term, and the impact on government revenue (including the use of additional revenue; and issues of noncompliance, inflation, black market or cross-border trade)?
Equity	• What is the impact of the intervention on (health) (in)equality and/or (health) (in)equity, including food and nutrition security (unequal and/or unfair access to food)? • Is the intervention sensitive to sex, gender, age, ethnicity, religion, culture, language, sexual orientation/gender identity, disability status, education, socioeconomic status, place of residence (including issues of social stigma, household expenditure, financial regressivity, and jobs/employment)?
Human rights	• Is the intervention in accordance with human rights standards, and what is the impact of the intervention on human rights (including the ability to make a competent, informed and voluntary decision)?
Acceptability	• Is the intervention acceptable to governments and policy-makers, the public and consumers, and industry? • Is the intervention acceptable to, and in agreement with, existing cultural and religious norms and beliefs? • Is the intervention aligned with environmental goals and considerations?
Feasibility	• What is the feasibility of developing and implementing the intervention (including barriers and facilitators)? • What is the feasibility of monitoring and enforcement of the intervention (including barriers and facilitators)? • Does the intervention have an impact on change within existing health or food systems (including resulting in additional interventions to improve the nutrition and health of populations)?

Annex 8.
GRADE evidence profiles

GRADE evidence profile 1

PICO: What is the effect on the outcomes of interest in adults and children of implementing a policy on nutrient declarations compared with not implementing the policy or implementing a different policy?

Population: Children and adults

Intervention: Nutrient declaration

Comparison: No nutrient declaration

Outcomes: Table 1 in section 2.2 categorizes outcomes as critical or important

Certainty assessment							Impact	GRADE certainty of evidence	Importance of outcome
No. of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Publication bias			
Consumer awareness of nutrient declarations									
0	RCT	NA	NA	NA	NA	NA	No RCTs reported this outcome.	NA	Critical
0	Non-RCT	NA	NA	NA	NA	NA	No non-RCTs reported this outcome.	NA	Critical
Consumer search for or use of nutrition information									
0	RCT	NA	NA	NA	NA	NA	No RCTs reported this outcome.	NA	Critical
2	Non-RCT (1 before-and-after study, 1 experimental study)	Veryserious[1]	Not serious	Serious[2]	Not serious	Not suspected	The non-RCT evidence is very uncertain about the effect of nutrient declarations, compared with no nutrient declaration, on consumer search for, or use of, nutrition information on food labels. 1 study found a clear effect favouring nutrient declarations *(1)*; there were higher response times with nutrient declarations, indicating cognitive processing of information (i.e. consumers were using the information). 1 study found no effect of nutrient declarations *(2)*, with no change in search for nutrition information following policy implementation.	⨁OOO Very low	Critical
Consumer understanding of nutritional quality or content of foods									

Certainty assessment							Impact	GRADE certainty of evidence	Importance of outcome
No. of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Publication bias			
7	RCT	Serious[3]	Not serious	Not serious	Not serious	Not suspected	The RCT evidence suggests that, compared with no nutrient declaration, nutrient declarations likely improve consumer understanding of the nutritional quality or content of foods. 3 RCTs (in 2 articles) found a clear effect favouring nutrient declarations for consumer judgements of product healthfulness *(3, 4)*; the effect of nutrient declarations was greater for those with higher levels of nutrition consciousness in 1 study *(3)*. 2 RCTs found an unclear effect potentially favouring nutrient declarations for consumer judgements of product healthfulness *(5)* (significance of difference not apparent). In 1 of these studies, the difference between the nutrient declaration and no label conditions depended on the nutrient profile model used to classify the nutritional quality of foods *(6)*. 2 RCTs found no difference in understanding of the nutritional quality or content of foods when the nutrient declaration was present compared with when it was not *(7, 8)*.	⊕⊕⊕O Moderate	Critical
2	Non-RCT (2 experimental studies)	Veryserious[4]	Not serious	Not serious	Not serious	Not suspected	The non-RCT evidence is very uncertain about the effect of nutrient declarations, compared with no nutrient declaration, on consumer understanding of the nutritional quality or content of foods. 2 experimental studies found a clear effect favouring nutrient declarations *(9, 10)*, with the presence of a nutrient declaration leading to better judgements of food healthfulness.	⊕OOO Very low	Critical
Food choice or intention to purchase/consume									
7	RCT	Serious[5]	Not serious	Serious[6]	Not serious	Not suspected	RCT evidence suggests that, compared with no nutrient declaration, nutrient declarations may improve choice or intention to purchase or consume foods. 3 RCTs (in 2 articles) found a clear effect favouring nutrient declarations *(3, 8)*, with the presence of nutrient declarations leading to more favourable food purchase intentions. 1 RCT found an unclear effect potentially favouring nutrient declarations *(11)*, with the presence of nutrient declarations leading to more favourable food purchase intentions for some foods but not others. 3 RCTs found no effect of nutrient declarations on the healthfulness of food choices or purchase intentions *(5, 12, 13)*.	⊕⊕OO Low	Critical

Certainty assessment							Impact	GRADE certainty of evidence	Importance of outcome
No. of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Publication bias			
5	Non-RCT (4 experimental studies, 1 cross-sectional study)	Very serious[7]	Not serious	Serious[8]	Not serious	Not suspected	The non-RCT evidence is very uncertain about the effect of nutrient declarations, compared with no nutrient declaration, on food choice or intention to purchase or consume foods. 3 experimental studies found a clear effect favouring nutrient declarations *(1, 10, 14)*, with the presence of nutrient declarations leading consumers to make more favourable food choices or purchase intentions. 1 cross-sectional study found an unclear effect potentially favouring nutrient declarations *(1 5)* , with a minority of consumers stating that nutrient declarations would influence their purchase decisions. 1 experimental study found no effect of nutrient declarations on purchase intentions *(9)*.	⨁OOO Very low	Critical
Food purchase									
0	RCT	NA	NA	NA	NA	NA	No RCTs reported this outcome.	NA	Critical
2	Non-RCT (1 before-a n d - after study, 1 experimental study)	Very serious[9]	Not serious	Not serious	Not serious	Not suspected	The non-RCT evidence is very uncertain about the effect of nutrient declarations, compared with no nutrient declaration, on food purchases. 1 experimental study found an unclear effect potentially favouring nutrient declarations *(16)*, with the presence of nutrient declarations leading to increased market share of more healthful foods. 1 before-and-after study found no effect of nutrient declarations on purchases *(1 7)* .	⨁OOO Very low	Critical
Diet									
1	RCT	Serious[10]	Not serious	Serious[11]	Serious[12]	Not suspected	The RCT evidence is very uncertain about the effect of nutrient declarations, compared with no nutrient declaration, on dietary intake. 1 RCT found an unclear effect potentially favouring no nutrient declaration *(18)*, such that nutrient declarations with standard (small) serving sizes (indicating low calorie content) led people to consume more of an unhealthful food compared with when no label was present. However, there was no difference between nutrient declarations with larger servings and no label.	⨁OOO Very low	Critical
3	Non-RCT (3 before-a n d - after studies)	Very serious[13]	Not serious	Serious[14]	Not serious	Not suspected	The non-RCT evidence is very uncertain about the effect of nutrient declarations, compared with no nutrient declaration, on dietary intake. 2 before-and-after studies found a clear effect favouring nutrient declarations *(19, 20)*, with the introduction of *trans*-fatty acid labelling on nutrient declarations associated with large reductions in the *trans*-fatty acid	⨁OOO Very low	Critical

Certainty assessment							Impact	GRADE certainty of evidence	Importance of outcome
No. of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Publication bias			
							content of breast milk. 1 before-and-after study found no difference in dietary quality of consumers who started using nutrient declarations, compared with those who never used nutrient declarations *(21)*.		
Food composition									
0	RCT	NA	NA	NA	NA	NA	No RCTs reported this outcome.	NA	Important
3	Non-RCT (3 before-a n d - after studies)	Very serious[15]	Not serious	Serious[16]	Not serious	Not suspected	The non-RCT evidence is very uncertain about the effect of nutrient declarations, compared with no nutrient declaration, on food composition. 2 before-and-after studies found a unclear effect potentially favouring nutrient declarations *(22, 23)*, with the introduction of mandatory *trans*-fatty acid declarations (together with *trans*- fatty acid–free claims) reducing the *trans*-fatty acid content of some food categories but not others. Saturated fatty acid content concomitantly increased in some foods but not others. 1 before-and-after study found no effect of nutrient declarations on food composition *(24)*.	⊕OOO Very low	Important
Diet-related NCDs									
0	RCT	NA	NA	NA	NA	NA	No RCTs reported this outcome.	NA	Important
1	Non-RCT (1 simulation study)	NA[17]	NA	NA	NA	NA	The non-RCT evidence is very uncertain about the effect of nutrient declarations, compared with no nutrient declaration, on diet-related NCDs. 1 simulation study found an unclear effect potentially favouring nutrient declarations, whereby modelled use of nutrient declarations was predicted to lead to reductions in NCDs *(25)*.	Could not be determined	Important
Body weight status									
0	RCT	NA	NA	NA	NA	NA	No RCTs reported this outcome.	NA	Important
0	Non-RCT	NA	NA	NA	NA	NA	No non-RCTs reported this outcome.	NA	Important
Unintended consequences									
0	RCT	NA	NA	NA	NA	NA	No RCTs reported this outcome.	NA	Important
2	Non-RCT (2 experimental studies)	Very serious[18]	Not serious	Serious[19]	Not serious	Not suspected	The non-RCT evidence is very uncertain about the effect of nutrient declarations, compared with no nutrient declaration, on food price. 2 experimental studies found that consumers were willing to pay more for foods displaying nutrient declarations, compared with no nutrient declarations *(26, 27)*.	⊕OOO Very low	Important

GRADE: Grading of Recommendations Assessment, Development and Evaluation; NA: not applicable; NCD: noncommunicable disease; RCT: randomized controlled trial.

1. 2 of 2 studies were of low quality (i.e. scored less than 7 on the Newcastle–Ottawa Quality Assessment Scale (NOS)).
2. 1 of 2 studies was conducted among college students, limiting the representativeness of the study population.
3. 6 studies were rated as raising some concerns of bias (i.e. judged as raising "some concerns" using the Cochrane Risk of Bias 2 (ROB 2) tool). 1 study was rated as being at high risk of bias.
4. 2 of 2 studies were of low quality (i.e. scored less than 7 on the NOS).
5. 7 of 7 studies were rated as raising some concerns of bias (i.e. judged as raising "some concerns" using the ROB 2 tool).
6. In 6 studies, intention to purchase was assessed using the hypothetical question "How likely is it that you would buy [food] on one of your shopping trips this month?" or similar, without requiring participants to make an actual choice. Only 1 study asked participants to make a food choice.
7. 4 of 5 studies were of low quality (i.e. scored less than 7 on the NOS).
8. In 3 studies, intention to purchase was assessed using the hypothetical question "How likely would you be to purchase the product, given the information shown?" or similar, without requiring participants to make an actual choice. Only 2 studies asked participants to make a food choice.
9. 2 of 2 studies were of low quality (i.e. scored less than 7 on the NOS).
10. The study was rated as raising some concerns of bias (i.e. judged as raising "some concerns" using the Cochrane Risk of Bias 2 (ROB 2) tool).
11. The study was conducted among college students, limiting the representativeness of the study population.
12. The study had a small sample size (*n* = 115).
13. 3 of 3 studies were of low quality (i.e. scored less than 7 on the NOS).
14. In studies on *trans*-fatty acid labelling (*n* = 2), nutrient declaration policy implementation coincided with reformulation policies to reduce *trans*-fatty acids in the food supply (meaning that the independent effect of the nutrient declaration policy could not be determined).
15. 3 of 3 studies were of low quality (i.e. scored less than 7 on the NOS).
16. In 2 of 3 studies, nutrient declaration policy implementation coincided with a policy for *trans*-fatty acid–free claims (meaning that the independent effect of the nutrient declaration policy could not be determined).
17. Risk of bias was not assessed for simulation studies.
18. 2 of 2 studies were of low quality (i.e. scored less than 7 on the NOS).
19. 2 of 2 studies asked about consumer willingness to pay for labels, rather than price change with label introduction.

GRADE evidence profile 2

PICO: What is the effect on the outcomes of interest in adults and children of implementing a policy on FOPL compared with not implementing the policy or implementing a different policy?

Population: Children and adults

Intervention: FOPL

Comparison: No FOPL

Outcomes: Table 1 in section 2.2 categorizes outcomes as critical or important

Certainty assessment							Impact	GRADE certainty of evidence	Importance of outcome
No. of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Publication bias			
Consumer awareness of FOPL									
0	RCT	NA	NA	NA	NA	NA	No RCTs reported this outcome.	NA	Critical
0	Non-RCT	NA	NA	NA	NA	NA	No non-RCTs reported this outcome.	NA	Critical
Consumer search for or use of nutrition information									
3	RCT	Serious[1]	Serious	Not serious	Not serious	Not suspected	The RCT evidence suggests that, compared with no FOPL, FOPL may improve consumer search or use of nutrition information on labels. 2 RCTs found an unclear effect potentially favouring FOPL *(28, 29)*. Eye tracking identified the use of labels in 1 study *(28)*, while another study found the time taken to select a food decreased when labels were used *(29)*. 1 RCT found an unclear effect potentially favouring no FOPL *(30)*, with the presence of FOPL increasing response times to rank foods on their relative healthfulness (although accuracy of ranking was better with FOPL).	⨁⨁OO Low	Critical
0	Non-RCT	NA	NA	NA	NA	NA	No non-RCTs reported this outcome.	NA	Critical
Consumer understanding of nutritional quality or content of foods									

Certainty assessment							Impact	GRADE certainty of evidence	Importance of outcome
No. of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Publication bias			
58	RCT	Serious[2]	Not serious	Not serious	Not serious	Not suspected	The RCT evidence suggests that, compared with no FOPL, FOPL likely improves consumer understanding of the nutritional quality or content of foods. 19 RCTs found a clear effect favouring FOPL *(7, 29, 31-43)*. The presence of FOPL either improved understanding of the nutritional content or quality of foods, compared with no label, or led consumers to judge the healthfulness of labelled foods in expected directions (decreased for warning labels, increased for endorsement logos and aligned with the nutritional quality of foods for other FOPL systems). 28 RCTs found an unclear effect potentially favouring FOPL *(5, 6, 30, 38, 44-67)*. 9 RCTs found no difference in consumer understanding of the nutritional content or quality of foods when FOPL was present *(4, 68-73)*. For 2 RCTs, the direction of effect could not be determined, as the healthfulness of the test foods was unclear *(74, 75)*.	⊕⊕⊕O Moderate	Critical
11	Non-RCT (8 experimental studies, 3 before-and-after studies)	Serious[3]	Not serious	Not serious	Not serious	Not suspected	The non-RCT evidence is very uncertain about the effect of FOPL, compared with no FOPL, on consumer understanding of the nutritional quality or content of foods. 4 experimental studies and 2 before-and-after studies found a clear effect favouring FOPL *(76-81)*. 4 experimental studies and 1 before-and-after study found an unclear effect potentially favouring FOPL *(82-86)*.	⊕OOO Very low	Critical
Food choice or intention to purchase/consume									
64	RCT	Serious[4]	Not serious	Not serious	Not serious	Not suspected	The RCT evidence suggests that, compared with no FOPL, FOPL likely improves the healthfulness of consumer food choices. Size of effect: According to the pooled analyses of studies comparing FOPL with no label (n = 26), the presence of FOPL led to lower choice or intention to consume unhealthy foods (standardized mean difference −0.17; 95% CI: −0.22 to −0.12; I^2 = 95%). 19 RCTs found a clear effect favouring FOPL *(13, 28, 33, 36, 37, 41, 42, 44 (study 2), 59, 87-96)*, with the presence of FOPL guiding more healthful food selections. 26 RCTs found an unclear effect potentially favouring FOPL *(33, 34, 38, 42, 43, 45, 50, 52, 57, 61, 64, 66, 67, 69, 97, 98 (study 1), 99-108)*. 19 RCTs found no overall difference in the healthfulness of food choices when FOPL was present *(5, 32, 38, 47, 53, 56, 58, 62, 68, 70-73, 109-114)*. In some studies with an unclear or no overall effect of FOPL, only some of the tested labels improved the healthfulness of food choices *(38, 43, 56, 57, 64, 67, 99-101, 104, 107, 110)*; generally, interpretive FOPL systems were effective whereas non-interpretive systems were not (see comparison 2 in section 3.1.3). In other studies, some, but not all, interpretive FOPL systems improved the healthfulness of food choices *(56, 64, 101, 104)*. In other studies, FOPL had only a partial effect on food choices *(33, 38 (study 2),*	⊕⊕⊕O Moderate	Critical

Certainty assessment							Impact	GRADE certainty of evidence	Importance of outcome
No. of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Publication bias			
							42, 45, 64, 66, 97, 98 (study 1), 106, 108); in these studies, FOPL encouraged choice of healthful foods but did not reduce choice of unhealthful foods *(33, 38, 64, 97 (study 2))*, influenced choices in some but not all food categories *(45, 66, 98, 106, 108)*, or had an effect when some measures of food choice were used but not others *(103)*.		
Food choice or intention to purchase/consume									
18	Non-RCT (17 experimental studies, 1 cross-sectional study)	Very serious[5]	Not serious	Not serious	Not serious	Not suspected	The non-RCT evidence is very uncertain about the effect of FOPL, compared with no FOPL, on food choice or intention to purchase or consume foods. 7 experimental studies and 1 cross-sectional study found a clear effect favouring FOPL on the healthfulness of food choices *(87, 115-121)*. 2 experimental studies found an unclear effect potentially favouring FOPL *(14, 83)*. In 1 of these studies, the effect was conditional on the policy arrangement; the presence of Health Star Rating labels on all foods (akin to mandatory implementation) led people to choose the healthiest food from the choice set *(14)*; however, the Health Star Rating label was less helpful in guiding choices when it was present on some, but not all, foods (akin to voluntary implementation). 7 experimental studies found no difference in the healthfulness of food choices when FOPL was present *(122-128)*. 1 experimental study found a clear effect favouring no FOPL *(42)*, with consumers more likely to choose any food with FOPL, regardless of its nutritional quality.	⨁OOO Very low	Critical
Food purchase									
9	RCT	Serious[6]	Not serious	Not serious	Not serious	Not suspected	The RCT evidence suggests that, compared with no FOPL, FOPL likely improves the healthfulness of food purchases. Size of effect: According to 5 comparable studies, there was a significant improvement of moderate size in the healthfulness of purchased foods when comparing FOPL with no FOPL (standardized mean difference −0.38; 95% CI: −0.54 to −0.21; I^2 = 90%). 1 RCT found a clear effect favouring FOPL *(129)*, with FOPL leading to improvements in the healthfulness of food purchases. 7 RCTs found an unclear effect potentially favouring FOPL *(75, 130-135)*. 1 RCT found no difference in the healthfulness of food purchases when FOPL was present *(136)*. However, consumers who were frequent users of an app depicting the FOPL in this study had significantly more healthful food purchases than those in the non-FOPL condition.	⨁⨁⨁O Moderate	Critical
12	Non-RCT (10 before-and-after studies, 1 cross-sectional	Very serious[7]	Not serious	Not serious	Not serious	Not suspected	The non-RCT evidence is very uncertain about the effect of FOPL, compared with no FOPL, on food purchases. 4 before-and-after studies *(137-140)* and 1 cross-sectional study *(141)* found a clear effect favouring FOPL with improvement in the healthfulness of food purchases following the introduction of, or exposure to, FOPL. 2 before-and-after studies *(142, 143)* and 1 simulation study *(144)* found an	⨁OOO Very low	Critical

Certainty assessment							Impact	GRADE certainty of evidence	Importance of outcome
No. of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Publication bias			
	study, 1 simulation study)						unclear effect potentially favouring FOPL. 4 before-and-after studies found no difference in the healthfulness of food purchases when FOPL was present *(145-148)*.		
Diet									
1	RCT	Serious[8]	Not serious	Not serious	Very serious[9]	Not suspected	The RCT evidence is very uncertain about the effect of FOPL, compared with no FOPL, on dietary intake. 1 RCT found no difference in the amount of a food consumed when FOPL was present *(62)*.	⨁OOO Very low	Critical
11	Non-RCT (1 experimental study, 2 before-and-after studies, 8 simulation studies)	Veryserious[10]	Not serious	Very serious[11]	Not serious	Potential[12]	The non-RCT evidence is very uncertain about the effect of FOPL, compared with no FOPL, on dietary intake. 1 before-and-after study found an unclear effect potentially favouring FOPL *(21)*, with an improvement in diet following uptake in use of endorsement logos. 7 simulation studies found an unclear effect potentially favouring FOPL *(149-155)* with predicted improvements to population diets upon replacing normally consumed foods with foods that were eligible to carry an endorsement logo or with foods with a more favourable nutritional profile based on lable nutrient profiling. 1 experimental study *(119)* and 1 simulation study *(156)* found no difference in dietary intake when FOPL was present. 1 before-and-after study found a clear effect favouring no FOPL *(157)*, with an increase in children's intakes of non-nutritive sweeteners following the introduction of warning labels; note that the warning labels were required for foods high in total sugars but not for non-nutritive sweeteners	⨁OOO Very low	Critical
Food composition									
0	RCT	NA	NA	NA	NA	NA	No RCTs reported this outcome.	NA	Important
17[13]	Non-RCT (17 before-and-after studies)	Veryserious[14]	Not serious	Not serious	Not serious	Not suspected	The non-RCT evidence is very uncertain about the effect of FOPL, compared with no FOPL, on food reformulation. 4 before-and-after studies found a clear effect favouring FOPL *(137, 158-160)*, with the introduction of FOPL leading to favourable food composition changes, including reformulation and changes to portfolio mix. 10 before-and-after studies found an unclear effect potentially favouring FOPL *(145, 161-169)*. 2 before-and-after studies found no overall difference in the nutritional quality of foods following the (voluntary) introduction of Health Star Rating labels	⨁OOO Very low	Important

Certainty assessment							Impact	GRADE certainty of evidence	Importance of outcome
No. of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Publication bias			
							(170) or warning labels *(171)*, with improvements in some nutrients but worsening in others. 1 before-and-after study found an unclear effect potentially favouring no FOPL *(172)*, with an increase in the non-nutritive sweetener content of foods following the introduction of warning labels.		
Diet-related NCDs									
0	RCT	NA	NA	NA	NA	NA	No RCTs reported this outcome.	NA	Important
4	Non-RCT (4 simulation studies)	NA	NA	NA	NA	NA	The non-RCT evidence is very uncertain about the effect of FOPL, compared with no FOPL, on diet-related NCDs. 4 simulation studies predicted small health gains with the introduction of FOPL, because of food reformulation or modified purchases *(132, 153, 156, 173)*. The improvements were greater when labelling was mandatory.	Could not be determined	Important
Body weight status									
0	RCT	NA	NA	NA	NA	NA	No RCTs reported this outcome.	NA	Important
1	Non-RCT (1 simulation study)	NA	NA	NA	NA	NA	The non-RCT evidence is very uncertain about the effect of FOPL, compared with no FOPL, on body weight. 1 simulation study predicted a reduction in obesity with the introduction of FOPL *(155)*.	Could not be determined	Important
Unintended consequences									
0	RCT	NA	NA	NA	NA	NA	No RCTs reported this outcome.	NA	Important
4	Non-RCT (1 cross-sectional study, 3 before-and-after studies)	Very serious[15]	Not serious	Not serious	Serious[16]	Not suspected	The non-RCT evidence is very uncertain about the effect of FOPL, compared with no FOPL, on food price and business/employment outcomes. 2 before-and-after studies found no effect of the introduction of warning labels on business outcomes (profits) and employment outcomes (wages) *(174, 175)*. 1 before-and-after study found that consumers paid more for foods carrying FOPL (an endorsement logo) for most, but not all, foods *(176)*. 1 cross-sectional study found that consumers were willing to pay a price premium for foods displaying the Health Star Rating label, compared with the	⊕OOO Very low	Important

Certainty assessment							Impact	GRADE certainty of evidence	Importance of outcome
No. of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Publication bias			
							same foods without the Health Star Rating label *(177)*.		

CI: confidence interval; FOPL: front-of-pack labelling; GRADE: Grading of Recommendations Assessment, Development and Evaluation; NA: not applicable; NCD: noncommunicable disease; RCT: randomized controlled trial;

1. 3 of 3 studies were rated as raising some concerns of bias (i.e. judged as raising "some concerns" using the Cochrane Risk of Bias 2 (ROB 2) tool).
2. 40 studies were rated as raising some concerns of bias (i.e. judged as raising "some concerns" using the ROB 2 tool). 6 studies were rated as being at high risk of bias. 12 studies were rated as being at low risk.
3. 5 studies were of high quality (i.e. scored 7 or more on the Newcastle–Ottawa Quality Assessment Scale (NOS)). 6 studies were of low quality (i.e. scored less than 7 on the NOS).
4. 46 studies were rated as raising some concerns of bias (i.e. judged as raising "some concerns" using the ROB 2 tool). 6 studies were rated as being at high risk of bias. 12 studies were rated as being at low risk.
5. 4 studies were of high quality (i.e. scored 7 or more on the NOS). 14 studies were of low quality (i.e. scored less than 7 on the NOS).
6. 5 studies were rated as raising some concerns of bias (i.e. judged as raising "some concerns" using the ROB 2 tool). 4 studies were rated as being at low risk of bias.
7. 4 studies were of high quality (i.e. scored 7 or more on the NOS). 7 studies were of low quality (i.e. scored less than 7 on the NOS). 1 simulation study was not assessed for quality.
8. The study was rated as raising some concerns of bias (i.e. judged as raising "some concerns" using the ROB 2 tool).
9. The study had a small sample size (n = 216). There was an apparent increase in the mean intakes of a food when an endorsement logo was present compared with the no label control. However, this did not reach significance and had large confidence intervals.
10. 1 study was of high quality (i.e. scored 7 or more on the NOS). 2 studies were of low quality (i.e. scored less than 7 on the NOS). 8 simulation studies were not assessed for quality.
11. 8 of 11 studies predicted the effects of a label on the outcome based on modelled scenarios.
12. Authors of 4 of the studies were associated with food industries, including those involved in implementing endorsement logos.
13. 2 studies reported on the same data *(93, 156)*. Only the published article is included *(156)*.
14. 7 studies were of high quality (i.e. scored 7 or more on the NOS). 10 studies were of low quality (i.e. scored less than 7 on the NOS).
15. 2 studies were of high quality (i.e. scored 7 or more on the NOS). 2 studies were of low quality (i.e. scored less than 7 on the NOS).
16. In 1 study, there were a small number of foods bearing an endorsement logo (known as "Choices"), which were used to assess change in price.

GRADE evidence profile 3

PICO: What is the effect on the outcomes of interest in adults and children of implementing a policy on interpretive FOPL compared with not implementing the policy or implementing a different policy?

Population: Children and adults

Intervention: Interpretive FOPL

Comparison: Non-interpretive FOPL

Outcomes: Table 1 in section 2.2 categorizes outcomes as critical or important

Certainty assessment							Impact	GRADE certainty of evidence	Importance of outcome
No. of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Publication bias			
Consumer awareness of FOPL									
2	RCT	Serious[1]	Serious	Serious[2]	Not serious	Not suspected	The RCT evidence is very uncertain about consumer awareness of interpretive FOPL compared with non-interpretive FOPL. 1 RCT found no difference in awareness between % GDA and some interpretive FOPL systems *(40)*. 1 RCT found an unclear effect potentially favouring non-interpretive FOPL *(65)*, whereby German consumers reported greater awareness of non-interpretive FOPL (% GDA) than interpretive FOPL (multiple traffic light labelling) (% GDA was used in the marketplace, while multiple traffic light labelling was not).	⊕OOO Very low	Critical
8	Non-RCT (4 repeat cross-sectional studies, 4 cross-sectional studies)	Veryserious[3]	Not serious	Not serious	Not serious	Not suspected	The non-RCT evidence is very uncertain about consumer awareness of interpretive FOPL compared with non-interpretive FOPL. 8 non-RCTs found an unclear effect potentially favouring non-interpretive FOPL *(158, 178-184)*, whereby consumers reported greater awareness of non-interpretive FOPL (% GDA) than most interpretive FOPL. Awareness of endorsement logos was also high. Awareness of interpretive systems (the Health Star Rating) increased over time following implementation of the labelling policy in the study country (New Zealand).	⊕OOO Very low	Critical
Consumer search for or use of nutrition information									

Certainty assessment							Impact	GRADE certainty of evidence	Importance of outcome
No. of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Publication bias			
6	RCT	Serious[4]	Not serious	Not serious	Serious[5]	Not suspected	The RCT evidence suggests that, compared with non-interpretive FOPL, interpretive FOPL may improve consumer search for, or use of, nutrition information on food labels. 2 RCTs found a clear effect favouring interpretive FOPL *(185, 186)*, with longer dwell times for non-interpretive systems, which suggest complexity in information processing. 2 RCTs found an unclear effect potentially favouring interpretive FOPL *(187, 188)*, with longer processing times (using eye tracking) for non-interpretive FOPL (% GDA) compared with interpretive FOPL (multiple traffic light labelling), again suggesting complexity in information processing. 2 RCTs found no difference in use of interpretive FOPL and non-interpretive FOPL *(189, 190)*. In 1 of these studies, both types of labels were used by most participants to make a snack selection. In the other study, response times were faster for some, but not all, interpretive systems.	⊕⊕OO Low	Critical
8	Non-RCT (8 experimental study)	Veryserious[6]	Not serious	Serious[7]	Serious[8]	Not suspected	The non-RCT evidence is very uncertain about the effect of interpretive FOPL, compared with non-interpretive FOPL, on consumer search for, or use of, nutrition information on food labels. 3 experimental studies found a clear effect favouring interpretive FOPL *(191-193)*, whereby attention capture (response time and fixations required for tasks) was better for interpretive FOPL systems. 2 experimental studies found an unclear effect potentially favouring interpretive FOPL *(83, 194)*, with better attention capture for some, but not all, interpretive FOPL systems. 2 experimental studies found no difference in consumer search for, or use of, interpretive FOPL or non-interpretive FOPL *(194, 195)*. 1 experimental study found an unclear effect potentially favouring non-interpretive FOPL *(196)*, with reaction times better for % GDA than for colour-coded % GDA.	⊕OOO Very low	Critical
Consumer understanding of nutritional quality or content of foods									

Certainty assessment							Impact	GRADE certainty of evidence	Importance of outcome
No. of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Publication bias			
37	RCT	Serious[9]	Not serious	Not serious	Not serious	Not suspected	The RCT evidence suggests that interpretive FOPL likely improves understanding of the nutritional quality or content of foods more than non-interpretive FOPL does. 3 RCTs found a clear effect favouring interpretive FOPL *(52, 65, 197)*, with interpretive FOPL leading to better understanding of the nutritional content or quality of foods compared with non-interpretive FOPL, or leading consumers to judge the healthfulness of foods in expected directions (decreased for warning labels, increased for endorsement logos and aligned with the nutritional quality of foods for other FOPL systems). 19 RCTs found an unclear effect potentially favouring interpretive FOPL *(35, 38, 47-51, 54-56, 66, 68, 73, 102, 189, 191, 198, 199)*. 14 RCTs found no difference in consumer understanding of interpretive FOPL or non-interpretive FOPL *(29, 32, 38, 40, 43, 53, 57, 61, 63, 96, 114, 188, 200, 201)*. 1 RCT found a clear effect favouring non-interpretive systems *(185)*, with % GDA leading to lower perceptions of food healthfulness for a less healthy food than Nutri-Score and multiple traffic light labelling did.	⊕⊕⊕O Moderate	Critical
18	Non-RCT (15 experimental studies, 3 cross-sectional studies)	Veryserious[10]	Not serious	Not serious	Not serious	Not suspected	The non-RCT evidence is very uncertain about the effect of interpretive FOPL, compared with non-interpretive FOPL, on consumer understanding of nutrition information on food labels. 2 experimental studies found a clear effect favouring interpretive FOPL *(192, 202)*. 4 experimental studies found an unclear effect potentially favouring interpretive FOPL *(80, 83, 85, 203)*. 9 experimental studies found no difference in consumer understanding of interpretive FOPL or non-interpretive FOPL *(78, 79, 81, 84, 86, 191, 204-206)*. 3 cross-sectional studies found an unclear effect potentially favouring non-interpretive FOPL, with % GDA outperforming endorsement logos *(179, 181)*, colour-coded % GDA *(207)*, and multiple traffic light labelling *(207)*.	⊕OOO Very low	Critical
Food choice or intention to purchase/consume									

Certainty assessment							Impact	GRADE certainty of evidence	Importance of outcome
No. of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Publication bias			
35	RCT	Serious[11]	Not serious[12]	Not serious	Not serious	Not suspected	The RCT evidence suggests that, compared with non-interpretive FOPL, interpretive FOPL likely improves the healthfulness of food choices. Size of effect: According to pooled analyses of studies comparing interpretive FOPL with non-interpretive FOPL (n = 12), the presence of interpretive FOPL led to a small, borderline significant reduction in choice of or intention to consume unhealthy foods (standardized mean difference −0.09; 95% CI: −0.19 to 0.01; I^2 = 94%). 4 RCTs found a clear effect favouring interpretive FOPL *(100, 110, 111, 186)*, with interpretive FOPL systems guiding more healthful food selections. 16 RCTS found an unclear effect potentially favouring interpretive FOPL *(38, 43, 47, 52, 73, 93-96, 99, 102, 107, 108, 191, 201, 208)*. 12 RCTs found no difference between interpretive FOPL or non-interpretive FOPL in their effect on the healthfulness of food choices or purchase intentions *(32, 38, 50, 53, 57, 61, 66, 68, 87, 112, 114, 187)*. 3 RCTs found an unclear effect potentially favouring non-interpretive FOPL *(56, 209, 210)*; in 2 of these studies, non-interpretive FOPL was perceived to influence food choices more than interpretive FOPL.	⊕⊕⊕O Moderate	Critical
13	Non-RCT (13 experimental studies)	Very serious[13]	Not serious[14]	Not serious	Not serious	Not suspected	The non-RCT evidence is very uncertain about the effect of interpretive FOPL, compared with non-interpretive FOPL, on food choice or intention to purchase/consume. 3 experimental studies found a clear effect favouring interpretive FOPL *(193, 211, 212)*, with interpretive FOPL leading to more favourable food choices. 3 experimental studies found an unclear effect potentially favouring interpretive FOPL *(213-215)*. 5 experimental studies found no difference between interpretive FOPL or non-interpretive FOPL in their effect on the healthfulness of food choices or purchase intentions *(83, 125, 194, 216, 217)*. 1 experimental study found an unclear effect potentially favouring non-interpretive FOPL *(81)*, with consumers perceiving that non-interpretive FOPL would influence food choices more than interpretive FOPL. 1 experimental study found an unclear effect potentially favouring non-interpretive FOPL *(194 (study 2))*, with % GDA performing better than colour-coded % GDA.	⊕OOO Very low	Critical
Food purchase									

Certainty assessment							Impact	GRADE certainty of evidence	Importance of outcome
No. of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Publication bias			
5	RCT	Serious[15]	Not serious	Not serious	Not serious	Not suspected	The RCT evidence suggests that, compared with non-interpretive FOPL, interpretive FOPL likely improves the healthfulness of food purchases. Size of effect: According to pooled analyses of studies comparing interpretive FOPL with non-interpretive FOPL (n = 3), the presence of interpretive FOPL led to a small but significant improvement in the healthfulness of purchased foods (standardized mean difference −0.26; 95% CI: −0.42 to −0.10; I^2 = 76%). 4 RCTs found an unclear effect potentially favouring interpretive FOPL *(129, 132, 135, 218)*. 1 RCT found an unclear effect potentially favouring non-interpretive FOPL *(219)*, with % GDA performing equally as well as some interpretive systems but better than others (labels that displayed only positive nutritional attributes, akin to an endorsement logo).	⊕⊕⊕O Moderate	Critical
0	Non-RCT	NA	NA	NA	NA	NA	No non-RCTs reported this outcome.	NA	Critical
Diet									
0	RCT	NA	NA	NA	NA	NA	No RCTs reported this outcome.	NA	Critical
0	Non-RCT	NA	NA	NA	NA	NA	No non-RCTs reported this outcome.	NA	Critical
Food composition									
0	RCT	NA	NA	NA	NA	NA	No RCTs reported this outcome.	NA	Important
0	Non-RCT	NA	NA	NA	NA	NA	No non-RCTs reported this outcome.	NA	Important
Diet-related NCDs									
0	RCT	NA	NA	NA	NA	NA	No RCTs reported this outcome.	NA	Important
1	Non-RCT (1 simulation study)	NA	NA	NA	NA	NA	The non-RCT evidence is very uncertain about the effect of interpretive FOPL, compared with non-interpretive FOPL, on diet-related NCDs. 1 simulation study found no difference between interpretive FOPL and non-interpretive FOPL in their predicted effects on diet-related NCDs.	Could not be determined	Important
Body weight status									
0	RCT	NA	NA	NA	NA	NA	No RCTs reported this outcome.	NA	Important
0	Non-RCT	NA	NA	NA	NA	NA	No non-RCTs reported this outcome.	NA	Important
Unintended consequences									
0	RCT	NA	NA	NA	NA	NA	No RCTs reported this outcome.	NA	Important
0	Non-RCT	NA	NA	NA	NA	NA	No non-RCTs reported this outcome.	NA	Important

CI: confidence interval; FOPL: front-of-pack labelling; GDA: Guideline Daily Amount; GRADE: Grading of Recommendations Assessment, Development and Evaluation; NA: not applicable; NCD: noncommunicable disease; RCT: randomized controlled trial;

1. 2 of 2 were studies rated as raising some concerns of bias (i.e. judged as raising "some concerns" using the Cochrane Risk of Bias 2 (ROB 2) tool).
2. 1 of 2 studies was conducted among university students and staff, limiting the representativeness of the study population.

3. 8 of 8 studies were of low quality (i.e. scored less than 7 on the Newcastle–Ottawa Quality Assessment Scale (NOS)).
4. 4 studies were rated as raising some concerns of bias (i.e. judged as raising "some concerns" using the ROB 2 tool). 2 studies were rated as being at low risk of bias.
5. 5 studies had small sample sizes (ranging from *n* = 50 to *n* = 123).
6. 1 study was of high quality (i.e. scored 7 or more on the NOS). 7 studies were of low quality (i.e. scored less than 7 on the NOS).
7. 5 of 8 studies were conducted among university students and staff, limiting the representativeness of the study populations.
8. 7 of 8 studies had a small sample size (ranging from *n* = 28 to *n* = 122).
9. 24 studies were rated as raising some concerns of bias (i.e. judged as raising "some concerns" using the ROB 2 tool). 9 studies were rated as being at low risk of bias. 4 studies were rated as being at high risk.
10. 7 studies were of high quality (i.e. scored 7 or more on the NOS). 11 studies were of low quality (i.e. scored less than 7 on the NOS).
11. 23 studies were rated as raising some concerns of bias (i.e. judged as raising "some concerns" using the ROB 2 tool). 10 studies were rated as being at low risk of bias. 2 studies were rated as being at high risk.
12. 2 of the 3 studies favouring non-interpretive FOPL asked about the perceived influence of labels on food choices. All other studies tested the effect of labels experimentally.
13. 13 of 13 studies were of low quality (i.e. scored less than 7 on the NOS).
14. 1 of the 2 studies favouring non-interpretive FOPL asked about the perceived influence of labels on food choices. All other studies tested the effect of labels experimentally.
15. 4 studies were rated as raising some concerns of bias (i.e. judged as raising "some concerns" using the ROB 2 tool). 1 study was rated as being at low risk of bias.

Annex 8 references

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Annex 9.
Summary of declarations of interests of contributors to the guideline development process

[To be added before finalization]

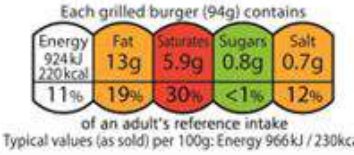
Annex 10.
Examples of interpretive and non-interpretive FOPL subsystems

This guideline and the systematic review conducted as part of the guideline's development *(1, 2)* use the terms interpretive FOPL and non-interpretive FOPL. Elsewhere, other terms are sometimes used to describe interpretive FOPL (e.g. directive FOPL) and non-interpretive FOPL (e.g. reductive FOPL, informative FOPL) *(3, 4)*.

Examples of interpretive FOPL systems included in studies in the systematic review are summary indicators (e.g. 5-colour nutrition label/Nutri-Score, Health Star Rating, SENS) which provides an overall assessment of a food's relative healthfulness, considering contents of key nutrients, nutrient-specific FOPL (e.g. multiple traffic light label, colour-coded/traffic light GDA, tablespoon) which provides information on the relative content of individual nutrients, separately; negative nutrient-specific FOPL (e.g. high in [nutrient] warning labels), which signpost negative nutrients for which the food exceeds a nutritional standard and endorsement logos, which provide a positive judgement on foods (e.g. healthy choices).

Examples of non-interpretive FOPL systems included in studies in the systematic review are reference intakes (e.g. % reference intake); GDA (e.g. % GDA) and calorie labelling (e.g. Facts Up Front).

Table A.10. **Example of FOPL systems by subtype***

FOPL system type	Examples
Interpretive FOPL system	
Summary indicator systems	
Nutrient-specific (traffic-light label)	
Negative nutrient-specific (warning label)	
Endorsement logos	
Non-interpretive FOPL systems	
Nutrient-specific systems	

*Adapted from: *The potential effectiveness of front-of-pack nutrition labeling for improving population diets (1).*

Annex 10 references

1. Kelly B, Ng SH, Carrad A, Pettigrew S. The potential effectiveness of front-of-pack nutrition labeling for improving population diets. Annu Rev Nutr. 2024;44. doi:10.1146/annurev-nutr-011224-030917.
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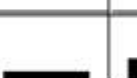
Annex 11.
Interpretive FOPL vs different interpretive FOPL

Table A.11 **Harvest plots of vote counting of direction of effects from RCTs for label comparison, for critical outcomes.**

Critical outcome (Intervention)		Clear effect favouring intervention	Unclear effect potentially favouring intervention	No difference
Consumer awareness	Nutrient-specific			
	Endorsement			
Consumer search or use	Summary indicator			
	Negative nutrient-specific			
	Endorsement			
Consumer understanding	Summary indicator			
	Nutrient-specific			
	Negative nutrient-specific			
	Endorsement			
Food choice	Summary indicator			
	Nutrient-specific			
	Negative nutrient-specific			
	Endorsement			
Food purchase	Summary indicator			
	Nutrient-specific			
	Negative nutrient-specific			
Dietary intakes	n/a			

** Supplementary figure 2 – The potential effectiveness of front-of-pack nutrition labelling for improving population diets (1).*

Annex 11 references

1. Kelly B, Ng SH, Carrad A, Pettigrew S. The potential effectiveness of front-of-pack nutrition labeling for improving population diets. Annu Rev Nutr. 2024;44. doi:10.1146/annurev-nutr-011224-030917.