FRONT-OF-PACK NUTRITION LABELLING
IN LATIN AMERICA AND THE CARIBBEAN

Guidance note

Summary

The Latin America and the Caribbean obesity and overweight prevalence is higher than the world's average. It has been increasing steadily over the last years, generating important economic and social costs for healthcare systems. One of the food and nutrition policies put into place in the region to address this issue are front-of-pack nutrition labelling (FOPNL)[1] laws or regulations, which inform the public of the nutritional value of food products and promote reducing the consumption of foods with excessive critical nutrients.[2]

In Latin America and the Caribbean, ten countries have enacted FOPNL laws or regulations five have implemented black octagonal warnings (Argentina, Chile, Mexico, Peru and Uruguay) and two are in the process of putting into effect similar systems (Colombia and the Bolivarian Republic of Venezuela). Ecuador has a worded traffic-lights FOPNL which is not necessarily placed on the front of the package; Brazil will apply a FOPNL with black rectangles and a magnifying glass and the Plurinational State of Bolivia approved a traffic-lights FOPNL, but has yet to implement it.

This guidance note draws from 45 research papers or reports on FOPNL systems in Latin America and the Caribbean. The review of the available literature on the subject allows us to conclude that FOPNL warnings allow the public to easily and properly identify products with excessive critical nutrients and reduce the intention to purchase said products. Also, that warnings do not affect employment or wages in the food industry.

This guidance note also proposes a series of key considerations when implementing this type of policiy. These include, among others: the need to have normative instruments that take into account the objectives and expected results, definitions, supervision and assessment mechanisms, as well as implementation deadlines. Finally, we recommend evaluating every implementation stage of the FOPNL in terms of expected results.

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[1]   FOPNL is the acronym used by the Codex Alimentarius Commission (FAO and WHO, 2021).
[2]   Argentina, Chile and Mexico have also implemented nutritional warnings identifying products high in or with excess critical nutrients, such as sodium, sugar or fats.

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Introduction

Overweight and obesity increased over the last 20 years in Latin America and the Caribbean. In children under five years the prevalence of overweight is 7.5 percent, almost 2 percentage points higher than the world's average. The nutritional status among adults is as concerning: 24.2 percent of adults in the region suffer from obesity (FAO *et al.*, 2022).

A high body mass index in children is associated with a greater probability of obesity, respiratory difficulties, hypertension and premature death (Rivera *et al.*, 2014; WHO, 2021), as well as limiting their behavioural, emotional and cognitive development (UNICEF, 2021). Obesity also increases the risk of showing early markers of cardiovascular diseases, insulin resistance, psychological effects and disability in adults (WHO, 2021). Among adults, obesity is an important risk factor for non-communicable diseases (NCDs), such as type 2 diabetes, cardio and cerebrovascular disorders and some types of cancer (WHO, 2021).

According to estimates for seven Latin American and Caribbean countries, the annual healthcare, pocket expence, absenteeism and premature death costs associated to obesity and overweight are high - Chile (USD 493 million), Dominican Republic (USD 1 451 million), Ecuador (USD 1 746 million), El Salvador (USD 855 million). Guatemala (USD 3 813 million), Honduras (USD 336 million) and Mexico (USD 7 314 million) (ECLAC and WFP, 2017; WFP and ECLAC, 2019a, 2019b, 2020a, 2020b). The higher costs belong to the sanitary expenses associated with the obese and overweight population suffering from hypertension and diabetes.

In addition, evidence shows that obesity and overweight increase the coronavirus morbidity and mortality rate from coronavirus disease.(WOF, 2019; Popkin *et al.*, 2020). Likewise, it is expected that the COVID-19 pandemic will exacerbate malnutrition in all its forms, including overweight and obesity, due to the reduced spending power of households, limitations in the availability and affordability of nutritive foods, interruptions in the delivery of essential nutrition services and re-duced opportunities for physical activity (UNICEF, WHO and World Bank, 2021).

Given all of the above, now more than ever it's imperative we step up efforts to implement multifactorial and multi-sectoral policies that help stop the rapid increase of obesity and overweight, focusing especially on childhood and adolescence (Hawkes, Jewell and Allen., 2013; FAO, 2021; Popkin *et al*, 2021). As well as having evidence-based policies and regulation fostering healthier food environments and behaviours.

The Committee on World Food Security (CFS) Voluntary Guidelines on Food Systems and Nutrition specify that "governments should promote and support science and evidence-based food and nutrition labelling, including considering diverse science and evidence-based front of pack labelling schemes, to support healthy diets" (CFS, 2021). On the other hand, between September and October 2021, the 46th meeting of the Codex Committee on Food Labeling took place, in which the guidelines on FOPNLs were agreed upon, including its definition and principles (FAO and WHO, 2021).

In Latin America and the Caribbean, the Parliamentary Front Against Hunger (FPH, as per its Spanish acronym) -a parliamentary and plural network made up of 21 national Parliaments and 5 regional Parliaments that operates with the support of the Latin American and Caribbean Parliament (Parlatino) and the Food and Agriculture Organization (FAO)- helps enact and implement these laws and policies in the countries of the region by fostering dialogue and experiences exchange, as well as holding forums and providing technical assistance about FOPNL legislation. FAO, the Panamerican Health Organization (PAHO) and the United Nations International Children's Emergency Fund (UNICEF) has aided the formulation or implementation of FOPL processes in several countries of the region, including: Argentina, Brazil, Chile, Colombia, Mexico and Peru.

The World Health Organization (WHO) identified FOPNL as a key policy in the promotion of healthy diets. One of the main levers to achieving this objective is to help consumers choose healthier foods and beverages (WHO, 2019).

FOPNL is a cost-effective policy that helps counter the increase in obesity and NCDs. It is also acknowledged to be a positive, impactful intervention for the world's population health (Sacks *et al.*, 2011; WHO, 2017; OECD, 2019).

There are several FOPNL designs, such as a summary systems, Guideline Daily Amount system, either monochromatic or coloured-coded; traffic-lights and nutritional warnings (PAHO, 2020). Nevertheless, the nutritional warnings have been the most effective in modifying the purchase decision towards healthier foods, (Croker *et al.* 2020; An *et al.*, 2021) by reducing the purchase intention of food with warnings (PAHO, 2020), since they capture consumers' attention quickly by providing easy-to-understand information about excess content of critical nutrients that affect health (Nieto *et al.*, 2019; Vargas-Meza *et al.*, 2019a; Vargas-Meza *et al.*, 2019b; PAHO, 2020).

Mandatory FOPNLs, along with a package of measures (school food regulations, marketing restrictions, among others), have shown to be more effective than isolated voluntary schemes to prevent overweight and (Khandpur *et al.*, 2018; Swinburn *et al.*, 2019).

In Latin America and the Caribbean, ten countries have enacted FOPNL laws or regulations. Five have implemented black octagon warning labels (Argentina, Chile, Mexico, Peru and Uruguay) and three are in the process of putting into effect similar systems (Colombia and the Bolivarian Republic of Venezuela). Ecuador has a traffic-lights FOPNL which is not necessarily placed on the front of the package; Brazil will apply a FOPNL with black rectangles and a magnifying glass; and the Plurinational State of Bolivia approved a traffic-lights FOPNL, but has yet to implement it.

The objective of this guidance note is to gather and present evidence of the implementation and evaluation of FOPNL policies in Latin America and the Caribbean, so to help Member Nations implement them.

Methodology

A bibliographical review was carried out between August and December 2021, using the Google Scholar and Pubmed search engines and the official country, universities', consumer organizations', civil society and international organisms' webpages. The terms searched were "etiquetado nutricional en la parte frontal del envase", "etiquetado frontal" (both originally in Spanish) and "front-of-pack nutrition labelling". The documents considered eligible for review were those dated from 2012 (the first year when a mandatory FOPNL was passed into law, in Chile) to 2021. Accurracy of the information was reviewed with the help of FAO´s focal points in countries and experts in the field. As a result, 45 research papers/ reports were selected (five from Argentina, six from Brazil, ten from Chile, four from Colombia, five from Mexico, six from Peru and nine from Uruguay).

Key front-of-pack nutrition labelling concepts

FOPNLs have the following features:

i) It is placed in the front exhibition panel of the package, which can be seen by the consumer before taking the product from the shelf.

ii) It follows an objective criteria for classification - the content of critical nutrients and other ingredients with harmful effects - which aims to protect public health.

iii) It has a simple presentation; its design aims to deliver information in a way that is easy to understand and apply, in order for the consumer to make an informed purchase decision (WHO, 2019; WOF, 2019).

Scope of front-of-pack nutrition labelling in Latin America and the Caribbean

In this section, we map the current status of the FOPNL systems in Latin America and the Caribbean that provide information about excessive critical nutrients associated with NCDs in foods, as well as summarize the information produced in those countries.

Argentina, the Plurinational State of Bolivia, Brazil, Chile, Colombia, Ecuador, Mexico, Peru, Uruguay and the Bolivarian Republic of Venezuela have existing mandatory FOPNL legislation, although not all have come into force (Figure 1 and Table 1).

The FOPNLs of the Plurinational State of Bolivia, Brazil, Colombia and Bolivarian Republic of Venezuela, are in the process of being implemented. Since 2014, Ecuador has a traffic-lights labeling system without mandatory front-of-pack labels. In the Plurinational State of Bolivia, a traffic-lights system FOPNL was approved but is yet to be implemented.

Black octagonal warnings FOPNL has already been implemented in Chile (2016), in 2019 in Peru, in 2020 in Uruguay and Mexico and in 2022 in Argentina, while it will come into force in 2023 in Colombia. Black octagonal warnings are in the process of being implemented for products high in sugar, saturated fats and trans fats in the Bolivarian Republic of Venezuela; products high in sodium carry the warnings since 2021. In Brazil, however, in 2022 a black rectangle with a magnifying glass that signposts foods with high contents of sugar, sodium and saturated fats, will be implemented.
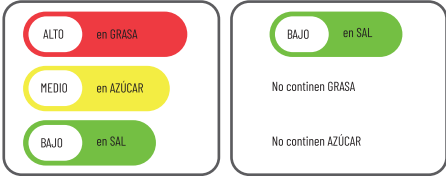
Several countries of Central America and the Caribbean are making progress in the formulation of national or regional warnings FOPNLs to adopt black octagonal warnings.

Figure 1. Scope of front-of-pack nutritional labeling in Latin America and the Caribbean.
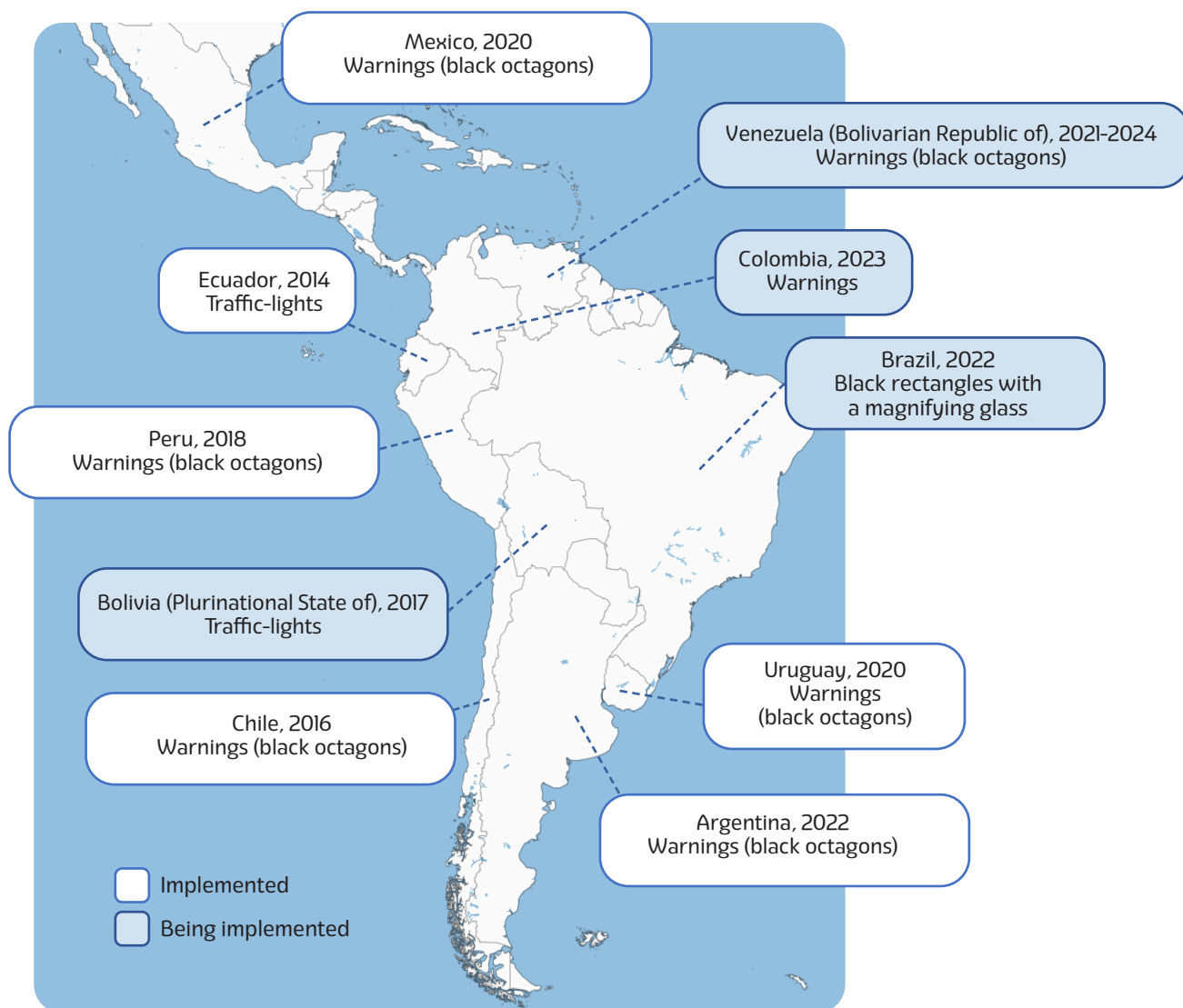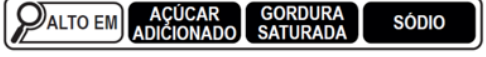
Source: FAO Hand in Hand Geospatial Plataform, 2022, prepared by the authors with information from: MSP, 2014; BCN, 2015; Gaceta Oficial del Estado Plurinacional de Bolivia, 2016; El Peruano, 2018; IMPO, 2018, 2021; SEGOB, 2019; Anvisa, 2020a; Boletín Oficial de la República Argentina, 2021,2022; Congreso de Colombia, 2021.

Table 1. Front-of-pack nutrition labelling in Latin America and the Caribbean by country, year it came into force, policy design and institution responsible for overseeing and supervising the FOPNL:

Country/ Normative instrument name	Year it came into force	Policy design	Responsible institution
Ecuador **Sanitary pro-tempore Processed Foods Labeling Regulation 5103**	2014	Traffic-lights (however, the law does not mandate it to appear on the front of the package) 	Agencia Nacional de Regulación, Control y Vigilancia Sanitaria (ARCSA)
Chile **Law 20.606 on the nutritional composition of foods and their advertising**	2016	Black octagonal warnings FOPNL 	Ministry of Health
Bolivia (Plurinational State of) **Healthy Food Promotion Act, Law 775**	One hundred and eighty days (180) since its publication. However, it is yet to be implemented.	Traffic-lights FOPNL based on the concentration levels of saturated fats, added sugars and sodium, with the following specifications: red "VERY HIGH IN", yellow, MEDIUM; and green "LOW IN".	Ministry of Health
Perú **Healthy Eating Law, 2013** **Advertising Warnings Manual, 2019**	2019	Black octagonal warnings FOPNL 	Ministry of Health a) Health Promotion Agency b) National Centre for Food and Nutrition (CENAN) c) General Environmental Health Agency (DIGESA)
Uruguay **Bromatological Regulation** **Decree 272/018** **Decree 246/020** **Decree 34/021**	2020	Black octagonal warnings FOPNL 	Ministry of Health
Venezuela (Bolivarian Republic of) **Resolution 011/2020** **Resolution 137/2021**	2021 (high in sodium warnings) 2024 (hign in sugar, saturated fats and trans fats warnings)	Black octagonal warnings FOPNL 	Ministry of Popular Power for Health

Mexico **Reform to the General Law on Health** **Modification to thew Mexican Official Normative NOM-051-SCFq/SSAI-2010**	**2020**	Black octagonal warnings FOPNL, black rectangular legends applied to artificial sweeteners and caffeine; and micro warning seals applied to small packages. 	Federal Commission for the Protection Against Health Hazards (COFEPRIS)
Brazil **Resolução da diretoria colegiada - RDC Nº 429, de 8 de outubro de 2020. Publicada no DOU nº 195, de 9 de outubro de 2020. Dispõe sobre a rotulagem nutricional dos alimentos embalados** **Instrução Normativa nº 75/2020. Requisitos técnicos para declaração da rotulagem nutricional nos alimentos embalados**	2022	Black rectangles with a magnifying glass FOPNL 	National Agency of Health Surveillance (Anvisa)
Argentina **Law 27642, Promotion of Healthy Diets**	2022	Black octagonal warnings FOPNL, black rectangular legends applied to artificial sweeteners and caffeine; and micro warning seals applied to small packages. 	Ministry of Health Autonomous City and Province of Buenos Aires Control Bodies
Colombia **Law 2120/2021**	2023	Warnings FOPNL to be defined	National Institute for the Supervision of Medicines and Foods (INVIMA)

Source: Prepared by the authors on the basis of MSP, 2014; BCN, 2015; El Peruano, 2018; IMPO, 2018, 2021; Secretaria de Gobernación, 2019; Anvisa, 2020; Boletín Oficial de la República Argentina, 2021; 2022; Congreso de Colombia, 2021. Gaceta Oficial de la República Bolivariana de Venezuela, 2020, 2021.

Evidence of front-of-pack nutrition labelling in Latin America and the Caribbean. Country overviews

In this section, we describe the legal framework and the most relevant evidence available for countries with FOPNL laws or regulations.

Argentina

Passed in 2021, Law 27.642, on the promotion of healthy diets, establishes that packaged foods and non-alcoholic beverages whose final composition exceeds a certain threshold of critical nutrients and energy value must include a black octagonal warnings FOPNL, stating clearly "EXCESS SUGAR"; "EXCESS SODIUM"; "EXCESS SATURATED FATS"; "EXCESS TOTAL FATS" or "EXCESS CALORIES" (Boletín Oficial de la República Argentina, 2021). The law establishes as well that foods and beverages containing sweeteners or caffeine must include legends that say "CONTAINS SWEETENERS, NOT RECOMMENDED FOR CHILDREN" and "CONTAINS CAFFEINE, NOT SUITABLE FOR CHILDREN".

The law also establishes that food products with at least one warning seal cannot be advertised, promoted and sponsored and cannot be given, sold, advertised, promoted or sponsored in educational establishments that belong to the National Education System. The law also forbids highlighting the nutritional or healthy properties, by using logos and messages, of products with excess calories or critical nutrients. Finally, the law states that, within 90 days of its enactment, the Executive must implement it and it is expected to come into effect in 2022.

Before the law was passed, a study from the Interamerican Heart Foundation (FIC) (2021a), a nationally representative survey among people between 18 and 64 years, showed support among all age ranges and socioeconomic groups for the implementation of a warnings FOPL: 91 percent of people polled supported the measure.

Argentina's Ministry of Health (2020a) assessed the performance of the warnings FOPNL compared to other FOPNLs. Nutritional warnings were compared with two types of guideline daily amount (GDA) labels (coloured and monochromatic). The results showed that warnings are better: they are spontaneously more visible, better capture the attention of the consumer, provide clearer information and identify more efficiently excessive critical nutrients. In addition, they transmitted in a better way the health risk perceptions and outperformed other FOPNLs in terms of purchase and consumption intention.

Another study shows that the warnings FOPNL, compared to Nutri-Score and the traffic-lights system, are significantly the most effective in regards to helping the population make healthier choices. Nutritional warnings greatly diminish the perception that this or that product is healthy and the intention to purchase food goods with excessive quantities of one or more critical nutrients (sodium, fats, saturated fats and sugar). The superiority of the warnings FOPNL was verified in population groups of different educational levels (FIC, 2021b).

Several studies also show that the PAHO[3] nutrient profile is coherent with the Food Guidelines for the Argentinian Population (Ministry of Health of Argentina, 2020b; Tiscornia *et al.*, 2020), which makes it easier for the population to fulfill the intake of critical nutrients recommended by the WHO (PAHO, 2021a).

Brazil

In 2022, Brazil will put into effect Resolution 429/2020, which includes the "Articles on nutritional labeling of packaged foods" and the Normative instruction 75/2020 regarding the "Technical requirements to declare the nutritional contents of packaged foods" (Anvisa, 2020a; DOU, 2020). In Brazil, the FOPNL instructs the inclusion of black rectangles with a magnifying glass and the message "HIGH IN" for all food products that exceed the threshold set by Anvisa for added sugar, saturated fats and sodium per 100 milligrams or milliliters (Anvisa, 2020b).

To strengthen the implementation of the FOPNL in Brazil, the following evidence was gathered.

Bandeira *et al.* (2021) directed a cross-sectional study in which 2 400 people were assigned randomly to one of six study groups: a control group and five groups that were exposed to different types of labeling (octagon, triangle, circle, magnifying glass and traffic-lights) applied to nine products. In general, consumers agreed on the need for labeling, irrespective of the model, perceiving it as a trustworthy means to improve and increase nutritional information. Nonetheless, the best performing model was the black octagonal warnings FOPNL.

In 2018, Khandpur *et al.* conducted a randomized controlled trial (with 1607 people) that showed that nutritional warnings were more effective at improving the consumers objective understanding of the nutritional contents and the appropriate perception of products, as well as modifying their purchase intention in favor of healthier food choices. A qualitative study further proved the superiority of the nutritional warnings, indicating that the population supports the implementation of FOPNLs and considers them useful to inform their purchase decisions (De Morais Sato *et al.*, 2019).

Deliza *et al.* (2020) compared the warnings FOPNL with the traffic-lights and GDA systems. They found out that warnings are the most effective way to help identify when a product has high contents of critical nutrients; they also discovered that using well-known warning signs enhances the effect. With regards to colour, black signs were easier to detect than red signs.

In a systematic review, Castano Silva *et al.* (2019) discovered that warnings FOPNLs obtained positive results in eight areas: time needed to capture and process attention (two studies supported this finding), health perception (five studies), consumption frequency (two studies), ability to differentiate healthy products from those that are not (two studies), label understanding and perception of the nutritional content (one study), purchase intention (two studies), emotions (one study) and opinion (one study). Thus, available evidence shows that warnings FOPNLs that indicate when a product contains excessive critical nutrients obtained better results (statistically significant) than other models.

It was also shown that the PAHO nutrient profile model is the one that best identifies products containing excess critical nutrients, in particular those with excess sugar (Durán *et al.*, 2021) and that it helps consumers keep up with the recommendations made by the WHO for a healthy diet (PAHO, 2021a).

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[3] The Pan-American Health Organization (PAHO) nutrient profile model provides a set of metrics, according to how processed are foods, to help the countries in the region identify ultra-processed and processed products with excess critical nutrients associated to NCDs, in accordance to the goals set forth by the World Health Organization (WHO) (that is to say, free sugars, sodium and total, saturated and trans fats) and implement policies aimed to minimize the supply and demand of these unhealthy products in the various food environments (PAHO, 2016; 2021d).

Chile

Enacted in 2012 and coming into force in 2016, Law 20.606, on the nutritional composition of foods and their advertising, stipulates the implementation of black octagonal warnings FOPNL with the message "HIGH IN" for critical nutrients (energy, sugar, sodium and saturated fats), according to a set of thresholds established by the health authority for every 100 milligrams (solids) or 100 milliliters (liquids) (FAO, OPS y OMS. 2016). It also forbids the sale of "HIGH IN" products in schools, as well as advertising of said products to children under 14.

The evidence accrued since the law came into force shows several positive outcomes:

i) appreciation of the law by families (more than 90 percent of women with children and teenagers appreciate and understand warning seals) (INTA, 2018);

ii) less exposure to advertising of ultra-processed products in children and adolescents (35 and 52 percent, respectively) (Minsal, 2017; INTA, 2018; Dillman *et al.*, 2020);

iii) food manufacturers have reformulated some of their products ("significant decreases in the average content of sugars in best-selling beverages, dairy products and breakfast cereals - between 20 and 35 percent of the initial content - ") (INTA, 2018);

iv) a decrease in sales of some products (beverages "HIGH IN" by 25 percent and breakfast cereals, by 14 percent) (INTA, 2018);

v) a general decrease in calory, sugar, saturated fats and sodium intake from processed and ultra-processed foods (INTA, 2018; Barahona *et al.*, 2021; Taillie *et al.*, 2020a; Taillie *et al.*, 2021);

vi) calory, sodium, sugar and saturated fats intake per capita per day from products "HIGH IN" diminished 23.8, 36.7, 26.7 and 15.7 percent, respectively, in comparison to the period before the law came into force and the first stage of implementation, after the law came into force (Taillie *et al.*, 2021); and

vii) several studies about the impact of the Chilean FOPNL system on the food industry showed that it quickly adjusted to a more regulated market and that the law had no negative impacts on employment, wages or total physical product and industry profits (Corvalán *et al.*, 2021; Paraje *et al.*, 2021; Paraje *et al.*, 2022) and even that some foods were reformulated, thus reducing the number of products with the "HIGH IN" warning seal (abChile, 2017; Reyes *et al.*, 2020).

Colombia

In Colombia, Law 2120 was passed in 2021. It states that "by means of [this law] measures are taken to promote healthy food environments and prevent non-communicable". This law, coming into effect in 2023, stipulates that a warnings FOPNL is mandatory for "all edible or drinkable products classified according to a quantity of excessive critical nutrients to be established by the Ministry of Health and Social Protection, on the basis of the best available scientifical evidence and free from conflicts of interest" and also in the PAHO nutrient profile model (Congreso de Colombia, 2021).

A study preceding the passing of the law, conducted by the Red PaPaz organization (2018) to almost a thousand people from various municipalities of Colombia´s four regions (Central, North, Antioquia and South), compared two types of FOPNLs: the GDA system and the nutritional warnings system. The black octagonal warnings allowed the participants of the study to better sort out food products. The people who classified products correctly was higher (80.9 percent) when packages carried a warning seal instead of a GDA label (57.1 percent). 66.7 percent of the study´s participants could easily and quickly identify the risk posed by products with a warning seal, while only 15.4 percent could do the same when the GDA system was applied. In the case of sugar-sweetened beverages, the warning seal helped reject unhealthy products (39.2 percent) and lower their consumption (54.4 percent).

Mora Plazas *et al.* (2020) assessed and compared the scope and limitations of GDA, nutritional warnings and Nutri-Score systems if implemented in Colombia. They concluded that the convoluted GDA scheme may not aid in the implementation of easy to identify and understand systems. By way of comparison, nutritional warnings were widely accepted and proved to be more effective. With regards to Nutri-Score, the study determined that there isn't enough evidence to estimate the potential impact of this labeling system on the patterns of food consumption, on the basis that its complexity could be an obstacle in societies with persisting low educational levels. In another study, black octagonal warnings were confirmed to have a better performance in discouraging the consumption of foods containing excessive essential nutrients (Taillie *et al.,* 2020b). Given all of the above, it was concluded that the black octagonal warnings FOPNL performs the best, helping consumers to easily identify products containing excess critical nutrients, as well as discouraging their consumption.

It was also shown that the PAHO nutrient profile model is the one that best identifies products containing excess critical nutrients, especially sugar-sweetened beverages (Mora Plazas *et al.,* 2019). This model helps consumers keep up with the recommendations made by the WHO for a healthy diet (PAHO, 2021a).

Mexico

In Mexico, a warnings FOPNL is in place since 2020, when the General Law on Health was amended and the Mexican Official Normative NOM-051-SCFq/SSA1-2010 modified (SEGOB, 2019; COFEPRIS, 2020). The Mexican FOPNL, just like the Chilean system, is made up of warning seals (black octagons) with the message "EXCESS" applied to foods and beverages over the established thresholds of calories, sugar, saturated fats, trans fats and sodium, for every 100 milligrams or 100 milliliters, in accordance to the PAHO (2016) nutrient profile model.

Small products (with a surface equal to or less than 40cm^2) are required to carry micro-seals indicating the number of critical nutrients in them, as well as two legends: "CONTAINS SWEETENERS, NOT RECOMMENDED FOR CHILDREN" and "CONTAINS CAFFEINE, NOT SUITABLE FOR CHILDREN". The law also forbids using persuasive elements, such as child characters, in the packages of products that carry a warning or a legend; and it regulates statements that attest to the nutritional or health properties of this or that product (COFEPRIS, 2020).

Randomized controlled trials conducted prior to the implementation of the nutritional warnings in Mexico show that black octagons managed to convey more effectively than any other labeling system, such as traffic-lights, Nutri-Score and Health Star Ratings, in achieving that products containing excessive amounts of critical nutrients, as is the case of sweetened-beverages, were recognized by the public as unhealthy (Hock, *et al.,* 2021; Jáuregui *et al.,* 2021).

A study conducted by Basto-Abreu *et al.* (2020) concluded that the Mexican warnings FOPNL will allow reducing the consumption of daily calories per person by 37 calories. After five years in operation, this number translates to USD 1 800 million in healthcare savings, as well as 1.3 million cases of obesity prevented (Basto-Abreu *et al.,* 2020).

A cross-sectional study by Cruz-Casarrubias *et al.* (2021) collected the nutritional information, ingredients and warning messages of foods and beverages in Mexico City´s main supermarkets. With that information, two scenarios (current and regulated) were created to estimate the effects of implementing the warnings FOPNL. In the current scenario, 68.4 percent of all products and 71.0 percent of ultra-processed foods had health/nutritional messages on the front of the package. In the regulated scenario, the proportion of products with health/nutritional messages is significantly lower (39.4 percent) than in the current scenario. In the regulated scenario, health/nutritional messages decreased the most in ultra-processed foods - in said scenario 51.1 percent of ultra-processed foods would not carry any messages, especially so for sugar-free sweetened-beverages (85.9 percent). Thus, the new regulation will prevent the application of health/nutritional messages in processed and ultra-processed foods, as well as improve the quality of information available to the consumers.

Finally, the PAHO nutrient profile model, employed in Mexico, was proven to be the one that best identifies foods with excess critical nutrients (Contreras-Manzano *et al.,* 2018), as well as helping the country´s population keep up with the WHO recommendation for a healthy diet (PAHO, 2021a).

Peru

Law 30021, on the promotion of a healthy diet for children and teens (El Peruano, 2018), came into force in 2019. It mandates, through its articles and the Advertising Warnings Manual, the implementation of a black octagonal warnings FOPNL with the message "HIGH IN" for solids and liquids that go over the threshold of critical nutrients (sugar, saturated fats, trans fats and sodium) for every 100 milligrams or 100 milliliters, established in the two first stages of implementation by the health authority and in the third and last stage, following the PAHO nutrient profile model.

According to the PAHO, during the first stages of implementation of the law, the thresholds used to classify products and mandate the application of warnings allowed products containing excess sugar, saturated fats and sodium to be exempt from carrying the warnings (Delgado Zegarra and da Silva Gomes, 2021). Therefore, the PAHO nutrient profile model (2016) was put in to place in the last stage, allowing the population to keep up with the WHO recommendations for a healthy diet (PAHO, 2021a).

In addition, Peruvian legislation states that all advertisement pieces broadcasted on radio, TV, the internet and in posters and panels; even in every mention made by Youtubers or influencers advertising those products, the "HIGH IN" warning must be included (El Peruano, 2018).

Before the Peruvian FOPNL was designed, researchers from the School of Nutrition and Dietetics of the Peruvian University of Applied Sciences studied which FOPNL consumers preferred: warning seals (black octagons) or traffic-lights accompanied by GDA (Valverde-Aguilar *et al.,* 2018). 93 people between 22 and 40 years of age were interviewed, 54 percent were women and 62 percent had a university education. For most of the interviewees (58.4 percent) the black octagons system was easier to understand.

After the warnings FOPNL was implemented, the Peruvian Company of Marketing and Public Opinion Research (2020) found out that 7 out of 10 people put attention to the warnings (72.5 percent). And that almost all of them (98.9 percent) eat fewer products carrying black octagons, or have stopped consuming them.

Meza-Hernández, Villarreal-Zegarra and Saavedra-García (2020) assessed 1234 foods according to the initial thresholds that came into force six months after the law was implemented and 39 months into the law's implementation, when the final and more restrictive thresholds came into effect. In short, they discovered that, six months after the law came into force, 84.2 percent of products carried black octagons, which later (39 months into the law) increased to 95.2 percent. Of said products, 13.5 percent (six months) and 18.6 (39 months) carried three or more octagons.

Peru's Ministry of Health, along with the PAHO (2021), verified that most of the products abide by the law. Nonetheless, a significant percentage (22 percent) still fail to comply with the requirements established during the first stage of implementation, which underscores the need to strengthen the supervision, inspection and penalization mechanisms.

Finally, the PAHO (2021b) systematized the Peruvian process - underscored by a series of events in the sanitary, political, economic, commercial and advertising sectors - , to learn from it and have a chronological record of the history of the process.

Uruguay

The warnings FOPNL regulation is in effect in Uruguay since 2020, when Decree 272/018, which establishes its´ graphical aspect (black octagons with the "HIGH IN" message) and Decrees 246/0202 and 034/021, that set the thresholds of sugar, sodium, fats and saturated fats for every 100 milligrams or 100 milliliters came into force (IMPO, 2018, 2021).

Prior to the implementation of the warnings FOPNL, a 2016 study with the participation of 442 children between the ages of 4 and 6, conducted in Montevideo, compared the effect of the traffic-lights system and the nutritional warnings on the purchase of wafer cookies and orange juice. The study found that warnings greatly discourage the consumption of unhealthy foods (Arrúa *et al.*, 2017a).

Another study compared the effects of the warnings FOPNL with those of the traffic-lights and GDA systems. The products carrying warnings with a "HIGH IN" message (calories, saturated fats, sugar and sodium) were correctly identified as such and as less healthy by the study's participants than in the other systems (Arrúa *et al.*, 2017b). Experimental studies also investigated the design elements of the warnings systems, finding out that octagons, the coloured black and the word excess, the para meters actually in place in the regulation, perform the best (Cabrera *et al.*, 2017).

Ten days before Decree 272/18 came into force, the measure was found to be well known (87 percent) and had an almost universal approval rate (94 percent), as well as being an important guideline to food purchase (58 percent of participants stated that they changed their purchase intention once the saw the black octagons) (UNICEF and UDELAR, 2020). A study comparing the periods before and after the law was implemented, also showed that warnings achieved their objective effectively, increasing the number of consumers that correctly identify the products containing excess critical nutrients (Ares *et al.*, 2020a).

Ares *et al.* (2020) also reported that in the first month after the law had come into effect nutritional warnings were widely known and used among the population.

Finally, despite evidence of the fact that children are highly exposed to ultra-processed foods and that those products do not contribute to the population keeping with the WHO recommendations for a healthy diet (Giménez *et al.*, 2017; PAHO, 2021a; Köncke *et al.*, 2022), Ares *et al.* (2020b) show that opposition to the measure managed to lower some of the thresholds of sugars, sodium, fats and saturated fats that determine whether a product carries a black octagon or not (IMPO, 2018, 2021).

Bolivarian Republic of Venezuela

Resolution 11 was published in 2020 with the objective of "protecting the Venezuelan population's health from the harmful effects of excess consumption of salt and sodium, providing consumers more information about the nutritional content of processed foods by applying a front-of-the-pack labell…" (Gaceta Oficial de la República Bolivariana de Venezuela, 2020).

This resolution is in effect since 2021. It enforces a black octagonal warnings FOPNL for products with added salt or other food additives or ingredients containing sodium and whose final composition exceed the thresholds established by the Ministerio of Poder Popular para la Salud.

Resolution 137 was published in 2021 by the Ministerio of Poder Popular para la Salud. Said resolution extended the warnings´ aplication to products high in sugar, saturated fats and trans fats, on the basis of evidence gathered and recommendations made by the WHO about these critical nutrients (Gaceta Oficial de la República Bolivariana de Venezuela, 2021). This resolution is in process of being implemented. It will come into force in 2024.

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Recommendations

Evidence on FOPNL abounds in Latin America, including studies before and after its mandatory implementation in some countries. Several studies have estimated the efficiency and efficacy of the FOPNL in terms of raising awareness, modifying purchase and consumption patterns, in different age and socio-economic population groups.

Studies that have compared FOPNL systems before and after their implementation, to assess if they achieved their stated objectives of helping identify products with excess critical nutrients and diminish their purchase intention, showed that black octagonal warnings performed the best. Moreover, post-implementation studies show that, compared to the pre-implementation stages, warnings effectively reduce the intention to purchase products with excess critical nutrients and they manage to do so without negatively affecting the economy and employment.

In accordance with the available evidence and the cases presented in this note, we can conclude that in order to establish an effective mandatory FOPNL policy it is important that:

- At the time of formulating a FOPNL it's crucial to identify and analyse the normative means that ensure the policy's sustainability and continuity. As it has been pointed out in this paper, some countries have written or modified laws while others have employed executive orders.

- Whatever normative means are chosen to implement the FOPNL, they must clearly establish the law's or policy's objectives, expected results and supervision and assessment mechanisms. For the policy to be successful it is also important to consider the budget and implementation timeframe. Doing so allows having clarity and certainty of the initiative's results, as well potential changes in the food environments and/or alterations in consumer behaviours, among others.

- It is critical that the tool to classify products used to apply the FOPNL drive the population to meet the nutritional and public health recommendations set by the WHO. In Latin America and Caribbean, since 2016 countries can rely on the PAHO nutrient profile model, which allows to change purchase intention and product consumption, in line with the WHO's recommendations.

- It's very important that the FOPNL links with other policy instruments to reduce the supply and demand of non-recommended food products and favor the consumption of foods that contribute to a healthy diet. One example of this is that foods and beverages with excess critical nutrients or unhealthy ingredients, such as sodium, sugars, saturated fats and artificial sweeteners, can't be sold in educational establishments and other institutions (Argentina, Chile and Peru). In the same vein, unhealthy foods cannot be marketed or advertised on TV and other mass media (Argentina, Chile and Mexico).
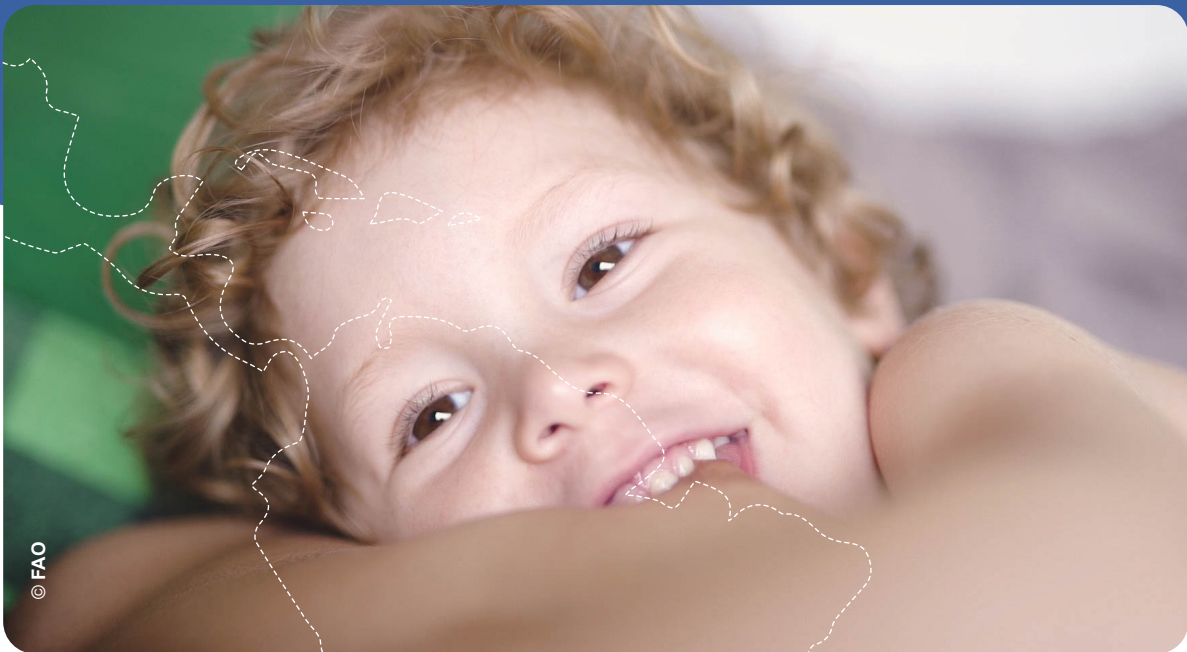
- It is highly recommended to incorporate a human rights approach in the design and implementation of policies for the prevention of overweight and obesity. This includes placing children and teens at the centre of discussions, debates and decision-making about the FOPNL.

- These policies also benefit when paired with food based dietary guidelines that discourage the consumption of foods with excess critical nutrients, activities promoting food and nutritional education and communication campaigns that promote the FOPNL.

- Policies aiming to encourage and protect healthy eating habits, health and the rights of children, such as FOPNL, must be led by national governments. It is highly recommended public participation and consultation instances are held with key actors, such as academia, civil society and the private sector, safeguarding that every stage of the process occurs within a well-defined and transparent frame of action (WHO, 2017b; Mialon *et al.*, 2020; OPS, 2022).

- Coordination between actors must highlight the roles played by each participating sector. For example, the executive power and government institutions are critical to puting into place the governance structure that will take charge of the FOPNL, while the academia is key for the development of independent and scientifically rigorous assessments. Likewise, civil society plays a crucial part in supervising and ensuring FOPNL regulation is observed. Finally, the food industry plays a critical role in the application and compliance of the FOPNL.

- Regarding the formulation and implementation of FOPNLs, some strategies were more successful than others, among them: prioritizing the FOPNL in the national political agenda; getting the endorsement of social actors involved in the promotion of healthy eating and consumer organizations, as well as having the backing of legislators.

- We strongly suggest that choosing which FOPNL system best suits a country be based on robust, actionable, scientific and context-sensitive evidence. In other words, policymakers must base their decisions on the best independent available evidence. Having up-to-date national evidence is not always necessary; sometimes it can be substituted by high-quality and rigorous foreign studies. (PAHO, 2021c).

- Generating domestic evidence before choosing the type of FOPNL system is extremely useful, insofar as it can strengthen the underlying scientific basis that better aligns with the food and health policies. At an early stage of support for the implementation of the FOPNL, the country´s investigators should focus on researching and evaluating how the FOPNL influences the objective understanding of nutritional information and impacts the population´s perception of how healthy foods are. We suggest that investigators prioritize quantitative over qualitative methods, face-to-face over online data collection and between-subjects rather than within-subjects methods (PAHO, 2021c).

- To supervize and assess adequately the chosen FOPNL, we recommend studying how it is used and how it behaves relative to its objectives, assessing and supervising the:

  o scope and observance of the regulation (for example, rate or percentage of compliance with the regulation);

  o the effect it has on how consumers perceive and understand food-products and their contents;

  o the effect it has on changing purchase intention; and

  o the effect it has on consumption patterns (diets).

- Assessing other effects of the FOPNLs could also be useful, such as how it impacts the modification of the nutrient composition of foods, or the portfolios of products.

- Given all of the above, having a baselinebaseline - prior to the implementation of the FOPNL - that considers indicators associated to the objectives and expected results of the policies is very important.

Conclusion

The struggle against obesity and NCDs associated to poor diets demand a holistic approach and holistic actions. FOPNLs implementation is one of those actions that has managed to change the food environment to promote a healthier diet. Today, 10 out of 33 countries in the region have adopted or implemented FOPNL systems, while others are in process of formulating their own, making rapid progress on the implementation of public policies capable of transforming our food systems into more efficient, inclusive, resilient and sustainable systems, so the whole of the population can achieve a better nutrition and health.

The experience and evidence accrued over the last years in the region on the matter, have allowed the FOPNL to become the system that achieves the best results in real population and national scenarios. Black octagonal warnings effectively reduce the purchase intention of products with excess critical nutrients, whose consumption is associated with diseases that are one of the main causes of death and loss of years of life in the region and the world. Also, we know that complementing FOPNL with other policies seeking to reduce the supply and demand of products with excess critical nutrients and the PAHO nutrient profile model, allows Latin American and Caribbean countries to contribute to the transformation of their food systems locally and globally.

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References

Alimentos y Bebidas de Chile (abChile). 2017. *Etiquetado de alimentos. Análisis de efectos*. Santiago.

An, R., Shi, Y., Shen, J., Bullard, T., Liu, G., Yang, Q., Chen, N. y Cao, L. 2021. Effect of front-of-package nutrition labeling on food purchases: a systematic review. Public Health, 191: 59-67.

Agencia Nacional de Vigilancia Sanitaria de Brasil (Anvisa). 2019. *Relatório de Análise de Impacto Regulatório sobre Rotulagem Nutricional*. Brasilia. http://antigo.anvisa.gov.br/documents/33880/5313808/Relat%C3%B3rio+de+An%C3%A1lise+de+Impacto+Regulat%-C3%B3rio+sobre+Rotulagem+Nutriconal.pdf/31d15194-568c-4862-82ec-97e38202b1a1

Anvisa. 2020a. *RESOLUÇÃO DA DIRETORIA COLEGIADA - RDC Nº 429, DE 8 DE OUTUBRO DE 2020* (Published by DOU nº 195, October 9 2020). Brasilia. http://antigo.anvisa.gov.br/documents/10181/3882585/RDC_429_2020_.pdf/9dc15f3a-db4c-4d3f-90d8-ef4b80537380

Anvisa. 2020b. *Rotulagem Nutricional de Alimentos Propostas de RDC e IN (presentación)*. www.gov.br/anvisa/pt-br/assuntos/noticias-anvisa/2020/aprovada-norma-sobre-rotulagem-nutricional/apresentacao-rotulagem-nutricional_19a.pdf#page=6

Ares, G., Antúnez, L., Curutchet, M. R., Galicia, L., Moratorio, X., Giménez, A. y Bove, I. 2020a. Immediate effects of the implementation of nutritional warnings in Uruguay: awareness, self-reported use and increased understanding. *Public Health Nutrition,* 24(2): 364-375.

Ares, G., Bove, I., Díaz, R., Moratorio, X., Benia, W. y Gomes, F. 2020b. Argumentos de la industria alimentaria en contra del etiquetado frontal de advertencias nutricionales en Uruguay. *Revista Panamericana de Salud Pública*, 44: e20.

Ares, G., Antúnez, L., Cabrera, M. y Thow, A. M. 2021. Analysis of the policy process for the implementation of nutritional warning labels in Uruguay. *Public Health Nutrition,* 17: 5927-5940.

Arrúa, A., Curutchet, M. R., Rey, N., Barreto, P., Golovchenko, N., Sellanes, A., Velazco, G., Winokour, M., Giménez, A. y Ares, G. 2017a. *I*mpact of front-of-pack nutrition information and label design on children's choice of two snack foods: Comparison of warnings and the traffic-light system. *Appetite,* 116: 139-146.

Arrúa, A., Machín, L., Curutchet, M., Martínez, J., Antúnez, L., Alcaire, F., Giménez, A., Ares, G. 2017b. Warnings as a directive front-of-pack nutrition labelling scheme: Comparison with the Guideline Daily Amount and traffic-light systems. *Public Health Nutrition,* 20(13), 2308-2317. doi:10.1017/S1368980017000866

Bandeira, L. M., Pedroso, J., Toral, N. y Bauermann Gubert, M. 2021. Performance and perception on front-of-package nutritional labeling models in Brazil. *Revista de Saúde Pública*, 55: 19.

Barahona, N., Otero, C., Otero, S. y Kim, J. 2021. *Equilibrium Effects of Food Labeling Policies.* http://dx.doi.org/10.2139/ssrn.3698473

Basto-Abreu A., Torres-Álvarez, R., Reyes-Sánchez, F., González-Morales, R., Canto-Osorio, F., Colchero, M. A., Barquera, S., Rivera, J. A. y Barrientos-Gutiérrez, T. 2020. Predicting obesity reduction after implementing warning labels in Mexico: A modeling study. *PLoS Med,* 17(7): e1003221.

Biblioteca del Congreso Nacional de Chile (BCN). 2015. LEY 20606. *Sobre composición nutricional de los alimentos y su publicidad.* Valparaíso. www.bcn.cl/leychile/navegar?idNorma=1041570

Boletín Oficial de la República Argentina. 2021. Ley 27642. *Promoción de la alimentación saludable.* Buenos Aires. www.boletinoficial.gov.ar/detalleAviso/primera/252728/20211112

Boletín Oficial de la República Argentina. 2022. Decreto 151/2022. *Promoción de la alimentación saludable. Reglamentación de la Ley Nº 27.642.* Buenos Aires. www.boletinoficial.gob.ar/detalleAviso/primera/259690/20220323

Cabrera, J. 2020. Estudios sobre la influencia del etiquetado frontal en los alimentos sobre el comportamiento de los consumidores en diversos países y en Colombia. Breve revisión del estado actual. *Revista de la Asociación Colombiana de Ciencia y Tecnología Alimentos,* 28(49):47-82.

Cabrera, M., Machín, L., Arrúa, A., Antúnez, L., Curutchet, M. R., Giménez, A. y Ares, G. 2017. Nutrition warnings as front-of-pack labels: influence of design features on healthfulness perception and attentional capture. *Public Health Nutrition,* 20(18): 3360-3371.

Castano Silva, T. B., Queiroz Ribeiro, A., Araújo dos Santos, C., y Fernandes Almeida, P. H. 2019. *Modelos de rotulagem nutricional frontal de alto conteúdo de nutrientes críticos comparado a outros modelos de rotulagem frontal nutricional: uma revisão sistemática.* Brasilia, Anvisa. http://antigo.anvisa.gov.br/documents/10181/3882585/%281%29Modelos+-de+rotulagem+nutricional+frontal+de+alto+conte%C3%BAdo+de+nutrientes+cr%-C3%ADticos+comparado+a+outros+modelos+de+rotulagem+frontal+nutricional/03753db7-bfa4-4b58-9cb1-e47edadef051

Comisión Federal para la Protección contra Riesgos Sanitarios de México (COFEPRIS). 2020. *Manual de modificación a la Norma Oficial Mexicana NOM-051-SCFI/SSA1-2010. Especificaciones generales de etiquetado para alimentos y bebidas no alcohólicas preenvasados.* México D. F. www.gob.mx/cms/uploads/attachment/file/653733/MANUAL_NOM051_v16.pdf

Committee on World Food Security (CFS). 2021. *CFS Voluntary Guidelines on Food Systems and Nutrition.* Rome, FAO. CFS_VGs_Food_Systems_and_Nutrition_Strategy_EN.pdf (fao.org)

Compañía Peruana de Estudios de Mercado y Opinión Pública (CPI). 2020. *Los octágonos: su impacto sobre el consumidor.* Market Report N° 02. Lima. http://cpi.pe/images/upload/paginaweb/archivo/26/mr_febrero_2_2020_oct_ok_1202.pdf

Congreso de Colombia. 2021. *Ley 2120. Por medio de la cual se adoptan medidas para fomentar entornos alimentarios saludables y prevenir enfermedades no transmisibles y se adoptan otras disposiciones.* Bogotá. https://dapre.presidencia.gov.co/normativa/normativa/LEY%202120%20DEL%2030%20DE%20JULIO%20DE%202021.pdf

Contreras-Manzano, A., Jáuregui, A., Velasco-Bernal, A., Vargas-Meza, J., Rivera, J. A., Tolentino-Mayo, L. y Barquera, S. 2018. Comparative Analysis of the Classification of Food Products in the Mexican Market According to Seven Different Nutrient Profiling Systems. *Nutrients,* 10(6): 737.

Corvalán, C., Correa, T., Reyes, M. y Paraje, G. 2021. *Impacto de la ley chilena de etiquetado en el sector productivo.* Santiago, FAO e INTA. www.fao.org/3/cb3298es/cb3298es.pdf

Croker, H., Packer, J., Russell, S. J., Stansfield, C. y Viner, R. M. 2020.Front of pack nutritional labelling schemes: a systematic review and meta-analysis of recent evidence relating to objectively measured consumption and purchasing. *Journal of Human Nutrition and Dietetics: the official journal of the British Dietetic Association,* 33(4): 518-37.

Cruz-Casarrubias, C., Tolentino-Mayo, L., Vandevijvere, S. y Barquera, S. 2021. Estimated effects of the implementation of the Mexican warning labels regulation on the use of health and nutrition claims on packaged foods. *International Journal of Behavioral Nutrition and Physical Activity,* 18, 76 (2021).

Delgado Zegarra, J. 2021. *Nutriscore versus etiquetado frontal de advertencia. Nueva Tribuna,* 1 de marzo de 2021. España. www.nuevatribuna.es/articulo/sociedad/nutriscore-vs-etiquetado-frontal-advertencia

Delgado Zegarra, J. y da Silva Gomes, F. 2021. Perfil de nutrientes de productos alimentarios eximidos de la aplicación de advertencias en el frente del envase durante la primera etapa de la Ley de alimentación saludable en Perú: estudio de caso. *Revista Panamericana de Salud Pública,* 45: e153.

Deliza, R. de Alcantara, M. Pereira, R. y Ares, G. 2020. How do different warning signs compare with the guideline daily amount and traffic-light system? *Food Quality and Preference,* 80: 103821.

De Morais Sato, P., Mais, L., Khandpur, N., Ulian M., Bortoletto Martins, A, García, M., Spinillo, C., Urquízar, C., Constante, P. y Baeza, F. 2019. Consumers' opinions on warning labels on food packages: A qualitative study in Brazil. *PLoS ONE,* 14(6): e0218813.

Diario Oficial da União. 2020. Instrucao normativa-IN N.º 75, del 8 de octubre de 2020. *Estabelece os requisitos técnicos para declaração da rotulagem nutricional nos alimentos embalados.* https://pesquisa.in.gov.br/imprensa/jsp/visualiza/index.jsp?data=09/10/2020&-jornal=515&pagina=113

Dillman Carpentier, F. R., Correa, T., Reyes, M. y Taillie, L. S. 2020. Evaluating the impact of Chile's marketing regulation of unhealthy foods and beverages: pre-school and adolescent children's changes in exposure to food advertising on television. *Public Health Nutrition,* 23(4): 747-755.

Ducrot, P., Julia, C., Méjean, C., Kesse-Guyot, E., Touvier, M., Fezeu, L. K., Hercberg, S. y Péneau, S. 2016. Impact of Different Front-of-Pack Nutrition Labels on Consumer Purchasing Intentions: A Randomized Controlled Trial. *Am J Prev Med,* 50(5):627-636.

Durán, A., Ricardo, C., Mais, L. y Bortoletto Martins, A. 2021. Role of different nutrient profiling models in identifying targeted foods for front-of-package food labelling in Brazil. *Public Health Nutrition,* 24(6): 1514-25.

Economic Commission for Latin America and the Caribbean (ECLAC) and World Food Programme (WFP). 2017. *Impacto social y económico de la malnutrición Modelo de análisis y estudio piloto en Chile, el Ecuador y México.* Santiago, CEPAL.www.cepal.org/sites/default/files/publication/files/41247/LCTS2017-32_es.pdf

El Peruano. 2018. *Aprueban Manual de Advertencias Publicitarias en el marco de lo establecido en la Ley 30021, Ley de promoción de la alimentación saludable para niños, niñas y adolescentes, y su Reglamento aprobado por Decreto Supremo 012-2018-SA.* Lima. https://busquedas.elperuano.pe/normaslegales/aprueban-manual-de-advertencias-publicitarias-en-el-marco-de-decreto-supremo-n-012-2018-sa-1660606-1

Food and Agriculture Organization (FAO). 2021. *Strategic framework 2022-2031.* Rome. www.

fao.org/3/cb7099en/cb7099en.pdf

FAO, Pan-American Health Organization (PAHO), WFP and United Nations Children's Fund (UNICEF). 2019. *Regional Overview of Food Security and Nutrition in Latin America and the Caribbean 2019.* Santiago, FAO, PAHO, WFP and UNICEF. www.fao.org/3/ca5162en/ca5162en.pdf

FAO, International Fund for Agricultural Development (IFAD), PAHO, WFP and UNICEF. 2020. *Regional Overview of Food Security and Nutrition in Latin America and the Caribbean 2020.* Santiago, FAO, PAHO, WFP and UNICEF. www.fao.org/policy-support/tools-and-publications/resources-details/es/c/1377737

FAO, IFAD, World Health Organization (WHO), WFP and UNICEF. 2021. *The State of Food Security and Nutrition in the World 2021. Transforming food systems for food security, improved nutrition and affordable healthy diets for all.* Rome, FAO. www.fao.org/publications/card/es/c/CB5409EN

FAO, IFAD, UNICEF, WFP and WHO. 2022. *The State of Food Security and Nutrition in the World 2022. Repurposing food and agricultural policies to make healthy diets more affordable.* Rome, FAO. https://doi.org/10.4060/cc0639en

FAO and WHO. 2021. *Codex Alimentarius Commission. Report of the forty-sixth session of the Codex committee on food labelling.* Roma, FAO. www.fao.org/fao-who-codexalimentarius/sh-proxy/en/?lnk=1&url=https%253A%252F%252Fworkspace.fao.org%252Fsites%252F-codex%252FMeetings%252FCX-714-46%252Freport%252FREP21_FLe.pdf

FAO, OPS y OMS. 2016. *Aprobación de la nueva ley de alimentos en Chile, resumen del proceso.* Santiago, FAO. www.fao.org/3/i7692s/i7692s.pdf

FIC. 2021b. *Encuesta para evaluar la influencia de tres sistemas de etiquetado frontal en la percepción de saludable y la intención de compra de determinados productos.* Buenos Aires. www.ficargentina.org/wp-content/uploads/2021/03/2103_encuesta_fop.pdf

Gaceta Oficial del Estado Plurinacional de Bolivia. 2016. *Ley de promoción de la alimentación saludable. Ley 775 del 8 de enero de 2016. Gaceta Oficial 825 NEC.* La Paz. www.gacetaoficialdebolivia.gob.bo/edicions/view/825NEC

Gaceta Oficial de la República Bolivariana de Venezuela. 2020. *Ministerio del Poder Popular para la Salud. Resolución No 011. 17 de enero de 2020.* Caracas. http://extwprlegs1.fao.org/docs/pdf/ven192716.pdf

Giménez, A., de Saldamando, L., Curutchet, M. R. y Ares, G. 2017. Package design and nutritional profile of foods targeted at children in supermarkets in Montevideo, Uruguay. *Cadernos de Saúde Pública*, 33(5): e00032116.

Gorski Findling, M. T, Werth, P. M, Musicus, A. A., Bragg, M. A., Graham, D. J., Elbel, B y Roberto, C. A. 2018. Comparing five front-of-pack nutrition labels' influence on consumers' perceptions and purchase intentions. *Prev Med,* 106:114-121.

Hawkes, C., Jewell, J. y Allen, K. 2013. A food policy package for healthy diets and the prevention of obesity and diet-related non-communicable diseases: The NOURISHING framework. *Obesity Review,* 14(2): 159-168.

Hock, K., Acton, R. B., Jáuregui, A., Vanderlee, L., White, C. M. y Hammond, D. 2021. Experimental study of front-of-package nutrition labels' efficacy on perceived healthfulness of sugar-sweetened beverages among youth in six countries. *Preventive Medicine Reports*, 24: 101577.

Hung, Y., Hieke, S. Grunert, K. G., y Verbeke, W. 2019. Setting policy priorities for front-of-pack health claims and symbols in the European union: Expert consensus built by using a delphi method. *Nutrients,* 11(2): 403.

Dirección Nacional de Impresiones y Publicaciones Oficiales de Uruguay (IMPO). 2018. *Modificación al Reglamento Bromatológico Nacional, relativo al rotulado de alimentos. Decreto 272/2018.* Montevideo. www.impo.com.uy/bases/decretos-reglamento/272-2018/1

IMPO. 2021. *Sustitución del Anexo del Decreto 246/020, relativo al rotulado de alimentos y creación de comisión interministerial, integración y funciones.* Decreto 34/021. Montevideo. www.impo.com.uy/bases/decretos-reglamento/34-2021/1

Instituto de Nutrición y Tecnología de los Alimentos (INTA) de la Universidad de Chile. 2018. *Ley de Etiquetado: Cambios en composición de alimentos y de conductas tras su implementación.* Santiago. https://inta.cl/evaluacion-de-panel-de-expertos-nacional-e-internacional-revela-cambios-en-composicion-de-alimentos-y-conductas-de-las-personas-tras-implementacion-de-la-ley-de-etiquetado

Interamerican Heart Foundation (FIC). 2021a. *Encuesta de opinión sobre etiquetado frontal de advertencias en alimentos y bebidas.* Buenos Aires. www.ficargentina.org/wp-content/uploads/2021/04/2104_encuesta_apoyo_fop.pdf

Jáuregui, A., White, C. M., Vanderlee, L., Hall, M. G., Contreras-Manzano, A., Nieto, C., Sacks, G., Thrasher, J. F., Hammond, D. y Barquera, S. 2021. *I*mpact of front-of-pack labels on the perceived healthfulness of a sweetened fruit drink: a randomised experiment in five countries. *Public Health Nutrition*: 1–11

Khandpur, N., De Morais Sato, P. Amaral Tais, L., Bortolleto Martins, A. P., Galvao Spinillo, C., Tarricone García, M., Urquízar Rojas, C. F. y Constante jaime, P. 2018. Are Front-of-Package Warning Labels More Effective at Communicating Nutrition Information than Traffic-Light Labels? A Randomized Controlled Experiment in a Brazilian Sample. *Nutrients,* 10(6): 688.

Köncke, F., Toledo, C., Berón, C., Klaczko, I., Carriquiry, A., Cediel, G. y Gomes, F. S. 2022. Estimation of Intake of Critical Nutrients Associated with Noncommunicable Diseases According to the PAHO/WHO Criteria in the Diet of School-Age Children in Montevideo, Uruguay. *Nutrients,* 14, 528.

Kunz, S., Haasova, S., Rieß, J. y Florack, A. 2020. Beyond Healthiness: The Impact of Traffic Light Labels on Taste Expectations and Purchase Intentions. Foods, 9(2):134

Machín, L., Arrúa, A., Giménez, A., Curutchet, M. R., Martínez, J. y Ares, G. 2017. Can nutritional information modify purchase of ultra-processed products? Results from a simulated online shopping experiment. *Public Health Nutrition,* 21(1): 49-57.

Machín, L., Aschermann-Witzel, J., Curutchet, M. R., Giménez, A. y Ares, G. 2018. Does front-of-pack nutrition information improve consumer ability to make healthful choices? Performance of warnings and the traffic light system in a simulated shopping experiment. *Appetite,* 121(1): 55-62.

Meza-Hernández, M., Villarreal-Zegarra, D. y Saavedra-García, L. 2020. Nutritional Quality of Food and Beverages Offered in Supermarkets of Lima According to the Peruvian Law of Healthy Eating. *Nutrients.* 12(5): 1508.

Mialon, M., Vandevijvere, S., Carriedo-Lutzenkirchen, A., Bero, L., Gomes, F., Petticrew, M., McKee, M., Stuckler, D., Sacks. G. 2020. Mechanisms for addressing and managing the influence of corporations on public health policy, research and practice: a scoping review. *BMJ Open,* 10: e034082. doi: 10.1136/bmjopen-2019-034082

Ministry of Health of Argentina. 2020a. *Evaluación del desempeño del Etiquetado Frontal de Advertencia frente a otros modelos en Argentina.* Buenos Aires. https://bancos.salud.gob.ar/recurso/evaluacion-del-desempeno-del-etiquetado-frontal-de-advertencia-frente-otros-modelos-en

Ministry of Health of Argentina. 2020b. *Análisis del nivel de concordancia de sistemas de perfil de nutrientes con las Guías Alimentarias para la Población Argentina.* Buenos Aires. https://bancos.salud.gob.ar/recurso/analisis-del-nivel-de-concordancia-de-sistemas-de-perfil-de-nutrientes-con-las-guias

Ministry of Health of Chile (Minsal). 2017. *Informe de evaluación de la implementación de la Ley sobre composición nutricional de los alimentos y su publicidad.* Santiago. www.minsal.cl/wp-content/uploads/2017/05/Informe-Implementaci%C3%B3n-Ley-20606-junio-2017-PDF.pdf

Ministry of Health of Peru and PAHO. 2021. *Cumplimiento de la normativa de inclusión de advertencias publicitarias en envases de productos alimenticios en el Perú.* Lima. https://iris.paho.org/handle/10665.2/54421#:~:text=El%2017%20de%20mayo%20del

Ministry of Public Health of Ecuador (MSP). 2014. *Reglamento de etiquetado de alimentos procesados para consumo humano.* Acuerdo Ministerial 5103. Registro Oficial Suplemento 318 de 25 de agosto de 2014. Quito. www.controlsanitario.gob.ec/wp-content/uploads/downloads/2016/12/Reglamento-de-Etiquetado-de-Alimentos-procesados-para-consu-mo-humano.pdf

Mora Plazas, M., Gómez L. F., Miles, D. R., Parra, D. C. y Taillie, L. S. 2019. Nutrition Quality of Packaged Foods in Bogotá, Colombia: A Comparison of Two Nutrient Profile Models. *Nutrients,* 11(5): 1011.

Mora Plazas, M., Gómez, L. F., Jalabe, W., Smith, L y Popkin, B. M. 2020. *¿Por qué es prioritario el etiquetado frontal en Colombia? Bogotá, Global Food Research y Pontifical Xavierian University.* www.nocomasmasmentiras.org/wp-content/uploads/2020/12/Eti-quetado-Fronta-en-Productos-Comestibles-en-Colombia.pdf

Nieto, C., Jáuregui, A., Contreras-Manzano, A., Arillo-Santillán, E., Barquera, S., White, C. M., Hammond, D. y Thrasher, J. F. 2019. Understanding and use of food labeling systems among Whites and Latinos in the United States and among Mexicans: Results from the International Food Policy Study, 2017. *International Journal of Behavioral Nutrition and Physical Activity,* 16(1): 87.

Organization for Economic Cooperation and Development (OECD). 2019. *The Heavy Burden of Obesity. A quick guide for policy-makers.* Paris. www.oecd.org/health/health-systems/Heavy-burden-of-obesity-Policy-Brief-2019.pdf

PAHO. 2016. *PAHO Nutrient Profile Model.* Santiago. www.paho.org/en/nutrient-pro-file-model

PAHO .2020. *Front-of-Package Labeling as a Policy Tool for the Prevention of Noncommunica-ble Diseases in the Americas.* Santiago. https://iris.paho.org/handle/10665.2/52740

PAHO. 2021a. *Consumo de productos alimentarios ultraprocesados y procesados con exceso de nutrientes asociados a las enfermedades crónicas no transmisibles y a la alimentación insa-lubre en las Américas.* Washington D. C. https://iris.paho.org/handle/10665.2/55547

PAHO. 2021b. *Ley de promoción de la alimentación saludable para niños, niñas y adolescentes. Experiencia de Perú.* Lima. https://iris.paho.org/handle/10665.2/54861

PAHO. 2021c. *Research to Support the Development of Front-of-Package Labeling Regulations for Food Products in the Americas: Methods, Tools, and Procedures.* Washington D. C. https://iris.paho.org/handle/10665.2/55057

PAHO. 2022. *Prevención y manejo de los conflictos de intereses en los programas de nutri-ción nacionales. Hoja de ruta para aplicar el proyecto de enfoque de la Organización Mun-dial de la Salud en la Región de las Américas.* Washington D.C. https://iris.paho.org/han-dle/10665.2/55944

Paraje, G., Colchero, A., Wlasiuk, J. M., Martner Sota, A. y Popkin, B. M. 2021. The effects of the Chilean food policy package on aggregate employment and real wages. *Food Policy,* 100: 102016.

Paraje, G., Montes de Oca, D., Wlasiuk, J. M., Canales, M. y Popkin, B. M. 2022. Front-of-Pack Labeling in Chile: Effects on Employment, Real Wages, and Firms' Profits after Three Years of Its Implementation. *Nutrients,* 14(2): 295.

Popkin, B. M., Du, S., Green, W. D., Beck, M. A., Algaith, T., Herbst, C. H., Alsukait, R. F., Al-luhidan, M., Alazemi, N. y Shekar, M. 2020. Individuals with obesity and COVID-19: A global perspective on the epidemiology and biological relationships. *Obesity Reviews,* 21(11): e13128.

Popkin, B. M., Barquera, S., Corvalán, C., Hofman, K. J., Monteiro, C., Ng, S. W., Swart, E. y Taillie, L. S. 2021. Towards unified and impactful policies to reduce ultra-processed food consumption and promote healthier eating. *The Lancet Diabetes and Endocrinology,* 9(7): 462-470.

RedPaPaz. 2019. *Estudio de actitudes, percepciones y comportamientos frente a políticas públicas para proteger el derecho a la alimentación adecuada.* Bogotá. www.redpapaz.org/wp-content/uploads

Reyes, M., Smith Taillie, L., Popkin, B., Kanter, R., Vandevijvere, S. y Corvalán, C. 2020. Changes in the amount of nutrient of packaged foods and beverages after the initial implementation of the Chilean Law of Food Labelling and Advertising: A nonexperimental prospective study. *PLoS Med,* 17(7):e1003220.

Rivera, J. Á., González de Cossío, T., Pedraza, L. S., Aburto, T. C., Sánchez, T. G. y Martorell, R. 2014. Childhood and adolescent overweight and obesity in Latin America: a systematic review. *The Lancet Diabetes & Endocrinology,* 2(4): 321–332.

Sacks, G., Rayner, M. y Swinburn, B. 2009. Impact of front-of-pack 'traffic-light' nutrition labelling on consumer food purchases in the UK. *Health Promot Int,* 24(4):344-52.

Sacks, G., Veerman, J. L., Moodie, M. y Swinburn, M. 2011a. 'Traffic-light' nutrition labelling and junkfood tax: A modelled comparison of cost-effectiveness for obesity prevention. *International. Journal of Obesity,* 35(7): 1001–1009.

Sacks G, Tikellis K, Millar L, Swinburn B. 2011b. Impact of 'traffic-light' nutrition information on online food purchases in Australia. *Aust N Z J Public Health,* 35(2):122-6.

Mexico's Interior Ministry. 2019. *Decreto por el que se reforman y adicionan diversas disposiciones de la Ley General de Salud, en materia de sobrepeso, obesidad y de etiquetado de alimentos y bebidas no alcohólicas.* DOF: 8/11/2019. México D. F. www.dof.gob.mx/nota_detalle.php?codigo=5578283&fecha=08/11/2019#gsc.tab=0

Taillie, L. S., Reyes, M., Colchero, M. A., Popkin, B. M. y Corvalán, C. 2020a. An evaluation of Chile's Law of Food Labeling and Advertising on sugar-sweetened beverage purchases from 2015 to 2017: A before-and-after study. *PLoS Medicine,* 17(2): e1003015.

Taillie, L. S., Hall, M. G., Gómez, L. F., Higgins, I., Bercholz, M., Murukutla, N., Mora-Plazas, M. 2020b. Designing an Effective Front-of-Package Warning Label for Food and Drinks High in Added Sugar, Sodium, or Saturated Fat in Colombia: An Online Experiment. *Nutrients,* 12, 3124. https://doi.org/10.3390/nu12103124

Tiscornia M. V., Castronuovo, L., Guarnieri, L., Martins, E. y Allemandi, L. 2020. Evaluación de los sistemas de perfiles nutricionales para la definición de una política de etiquetado frontal en Argentina. *Revista Argentina de Salud Pública,* 12: e17.

Swinburn, B. A., Kraak, V. I., Allender, S., Atkins, V. J., Baker, P. I. y Bogard, J. R. 2019. The Global Syndemic of Obesity, Undernutrition, and Climate Change: The Lancet Commission report. *The Lancet,* 393(10173): 791-846.

UNICEF. 2021. *El sobrepeso en la niñez. Un llamado para la prevención en América Latina y el Caribe.* Ciudad de Panamá. www.unicef.org/lac/media/30441/file/Reporte-El-sobrepeso-en-la-ninez-ed-rev.pdf

UNICEF and University of the Republic of Uruguay (UDELAR). 2020. *Efectos inmediatos de la implementación del rotulado nutricional frontal en Uruguay.* Montevideo, UNICEF. www.unicef.org/uruguay/informes/efectos-inmediatos-de-la-implementacion-del-rotulado-nutricional-frontal-en-uruguay

UNICEF, WHO and World Bank. 2021. *Levels and trends in child malnutrition.* Ginebra, OMS. https://apps.who.int/iris/handle/10665/341135

Valverde-Aguilar, M., Espadín Alemán, C. C., Torres Ramos, N. E. y Liria Domínguez, R. 2018. Preferencia de etiquetado nutricional frontal: octágono frente a semáforo GDA en mercados de Lima, *Perú. Acta Médica Peruana,* 35(3).

Vargas-Meza, J., Jáuregui, A., Pachecho-Miranda, S., Contreras-Manzano, A. y Barquera, S. 2019a. Front-of-pack nutritional labels: Understanding by low and middle-income Mexican consumers. *PLoS ONE,* 14(11): e0225268.

Vargas-Meza, J., Jáuregui, A., Pachecho-Miranda, S., Contreras-Manzano, A. y Barquera, S. 2019b. Acceptability and understanding of front-of-pack nutritional labels: an experimental study in Mexican consumers. *BMC Public Health,* 19: 1751.

WFP and ECLAC. 2019a. *El costo de la doble carga de la malnutrición. Impacto social y económico en El Salvador.* Rome, WFP. https://es.wfp.org/publicaciones/el-costo-de-la-doble-carga-de-la-malnutricion-el-salvador

WFP and ECLAC. 2019b. *El costo de la doble carga de la malnutrición. Impacto social y económico en la República Dominicana.* Rome, WFP. https://es.wfp.org/el-costo-de-la-doble-carga-de-la-malnutricion-republica-dominicana

WFP and ECLAC. 2020a. *El costo de la doble carga de la malnutrición. Impacto social y económico en Guatemala.* Rome, WFP. https://es.wfp.org/publicaciones/el-costo-de-la-doble-carga-de-la-malnutricion-guatemala

WFP and ECLAC. 2020b. *El costo de la doble carga de la malnutrición. Impacto social y económico en Honduras.* Rome, WFP. https://es.wfp.org/publicaciones/el-costo-de-la-doble-carga-de-la-malnutricion-impacto-social-y-economico-en-honduras

WHO. 2017a. *Tackling NCDs: "Best buys" and other recommended interventions for the prevention and control of noncommunicable diseases.* Ginebra. www.who.int/iris/handle/10665/259232

WHO. 2017b. *Safeguarding against possible conflicts of interest in nutrition programmes.* Executive Board. EB142/23. Ginebra. https://apps.who.int/gb/ebwha/pdf_files/EB142/B142_23-sp.pdf

WHO. 2019. *Guiding principles and framework manual for front-of-pack labelling for promoting healthy diet.* Ginebra. www.who.int/docs/default-source/healthy-diet/guidingprinciples-labelling-promoting-healthydiet.pdf?sfvrsn=65e3a8c1_2&download=true

WHO. 2021. *Obesity and overweight. Fact sheet.* www.who.int/news-room/fact-sheets/detail/obesity-and-overweight

World Obesity Federation (WOF). 2019. *Implementing Front-of-pack nutrition labelling regulations: Considerations for European policymakers.* Londres. www.stopchildobesity.eu/wp-content/uploads/2019/11/STOP_FOPL_Briefing_FINAL.pdf

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