



fighting heart disease
and stroke

european heart network

Front-of-pack (FOP) nutrition labelling – European Heart Network position

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Summary

For many years, the European Heart Network (EHN) has actively advocated for introduction of simplified nutrition information on the front of food packages as a cardiovascular health promoting measure. In its 2017 paper *Transforming European food and drink policies for cardiovascular health* EHN called for the EU to adopt mandatory EU-wide simplified front-of-pack (FOP) nutritional labelling and recommended a scheme which uses traffic light colours to indicate high, medium and low levels of fat, saturated fat, salt and (preferably added) sugar, and committed to following developments in evidence for the most effective FOP nutrition labelling scheme.

Since publication of the paper in 2017, there have been several developments on FOP nutrition labelling at the global and European levels. In light of these major developments, and in line with its commitment to follow developments in evidence, EHN has adopted a new position on FOP labelling

Evidence on FOP labelling schemes

The case for introducing FOP labelling has strengthened in recent years. All FOP labelling schemes can help consumers in their ability to make healthy choices and, in addition, can encourage food product reformulation. There is emerging evidence that some schemes appear to perform well with lower socio-economic groups. Implementation on a mandatory basis is more likely to be effective than voluntary schemes and FOP labelling schemes may become more effective over time. All FOP labelling systems currently used in Europe have different advantages and disadvantages. Although the evidence is highly heterogeneous, recent studies (which did not include endorsement logos) increasingly point to Nutri-Score, followed by multiple traffic lights, as being most effective at improving consumers' objective understanding of the nutritional quality of foods. Furthermore, it is important that schemes are well aligned with national healthy eating guidelines.

There is now increasing momentum at the global and European levels for the implementation of FOP labelling, and the environment is now more favourable to introduction of a single EU-wide scheme. The Commission has committed to preparing a legislative proposal for an EU-wide scheme. Following the UK's departure from the EU, support for EU-wide implementation of traffic lights is deemed less tenable. In the period since 2017, the Nutri-Score labelling scheme has gained considerable traction across Europe, although concerns have emerged that the underlying algorithm needs to be adapted and aligned with scientific food-based dietary

guidelines in order to be appropriate for prevention of cardiovascular disease in all European countries.

EHN recommendations:

- **The EU should adopt a fully-harmonised mandatory simplified, interpretive FOP nutrition labelling scheme.** This could have a positive effect on CVD prevalence and mortality and could address inequalities in CVD in the EU. Obviously, FOP labelling is only one element in a comprehensive nutrition policy package. According to research, mandatory schemes are preferable as these will ensure that all food and (non-alcoholic) drinks are covered and, thus, are more likely to decrease the burden associated with diet-related NCDs.

Furthermore, all people living in the EU should benefit from an evidence-based FOP nutrition labelling system. Given concerns that several EU member states, notably in Central and Eastern European countries, may not introduce effective FOP nutrient labelling unless mandated by the EU, a mandatory EU-wide approach is required. From an internal market perspective this would also create a simplified operating environment for food manufacturers.

- **Based on current evidence and recent developments, the EU should consider adopting Nutri-Score conditional upon a review and adaptation of the underlying algorithm and adoption of a new algorithm.** The condition for acceptance is that the new algorithm must take into account national food-based dietary guidelines to achieve changes in dietary habits to promote cardiovascular health, as well as dietary health more broadly, across all EU Member States.
- **A scientific committee of independent experts should be established to review and adapt the algorithm underpinning Nutri-Score and to assess whether and under what conditions the algorithm may be converted into a pan-European label.** The workings of the committee must be transparent, and robust safeguards against conflicts of interest are essential. Committee members should be drawn from different regions within Europe, representing varying dietary patterns. The recommendations of the scientific committee must be published and open for consultation with all stakeholders.
- **Pending an EU-wide scheme, EU Member States and other countries within the WHO European Region that do not yet have a government-endorsed scheme should opt for Nutri-Score or another government-endorsed scheme already in use in another European country while ensuring that the underlying algorithm supports national dietary guidelines.** For maximum impact, countries in the WHO European Region but outside the EU should implement the scheme on a mandatory basis.

Introduction and aim

Research has consistently shown an association between use of nutrition labels and healthier diet.¹ However, there are widespread problems with understanding and interpretation of the relatively complex numerical information on the back-of-pack nutrition information panels used in Europe.² This is why health advocates have long been calling for introduction of simplified nutrition information on the front of food packages and that, increasingly, countries are implementing such schemes.

In its 2017 paper *Transforming European food and drink policies for cardiovascular health*³ the European Heart Network (EHN) reiterated its support for implementation of mandatory simplified front-of-pack (FOP) nutrition labelling in Europe with the following recommendations:

- EU to adopt mandatory EU-wide simplified FOP nutritional labelling.
- EHN continues to recommend a scheme which uses traffic light colours to indicate high, medium and low levels of fat, saturated fat, salt and (preferably added) sugar.
- EHN will follow developments in evidence for the most effective FOP nutrition labelling scheme.
- Non-EU Member States to legislate for mandatory FOP nutrition labelling.

Since publication of the paper in 2017, there have been several developments on FOP nutrition labelling at the global and European levels. In line with its commitment to follow developments, EHN has monitored the changing situation and evidence base on FOP nutrition labelling in Europe. Major developments include burgeoning scientific evidence on the impact of FOP labelling, emerging guidance on FOP nutrition labelling at the global level, increasing official adoption of different FOP schemes by European countries and a commitment by the Commission to propose an EU-wide FOP scheme, as well as other important socio-political changes in Europe.

In light of these major developments, EHN has reviewed its position on FOP nutrition labelling in Europe.

¹ Campos, S. *et al.* Nutrition labels on pre-packaged foods: a systematic review. *Public Health Nutrition*. 2011; 14(8): p. 1496-1506; Drichoutis, A.C.; Lazaridis, P.; Nagya, R. Consumers' use of nutritional labels: A review of research studies and issues. *Acad. Mark. Sci. Rev.* 1 (2006); Volkova, E., Ni Mhurchu, C. The influence of nutrition labeling and point-of-purchase information on food behaviours. *Current Obesity Reports* 4(1):19-29 (2015).


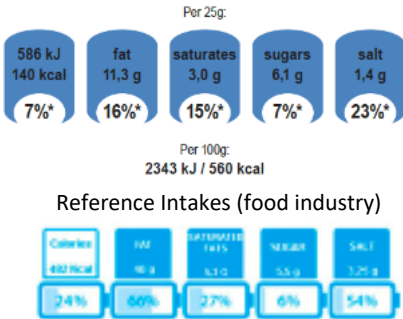


² Campos *et al.*, *Ibid*; Cowburn, G., Stockley, L. Consumer understanding and use of nutrition labelling: a systematic review. *Public Health Nutrition* 8(1):21-28 (2005); Hawley, K.L. *et al.* The science on front-of-package food labels. *Public Health Nutrition* 16(3):430-439 (2012); Ni Mhurchu, C., Gorton, D. Nutrition labels and claims in New Zealand and Australia: a review of use and understanding. *Australian And New Zealand Journal Of Public Health* 31(2):105-12 (2007).

³ *Transforming European food and drink policies for cardiovascular health* <http://www.ehnheart.org/publications-and-papers/publications/1093:transforming-european-food-and-drinks-policies-for-cardiovascular-health.html> (2017).

Types of FOP labelling

There are many different types of FOP nutrition labelling schemes – with at least 31 unique FOP nutrition labels in existence globally.⁴ In 2018, 15 countries in Europe, of which 11 were in the EU, were identified as having a government-endorsed policy on interpretive FOP labelling, with 13 of these adopting endorsement logos.⁵ Table 1 summarises some of the key characteristics that differentiate schemes, with examples from schemes that have been implemented or are planned in Europe.






Table 1 Key characteristics of different types of front-of-pack labelling schemes⁶

Characteristics	Variations	Example schemes implemented/ planned in Europe
Interpretive or informative provision of information	Interpretive schemes that provide information to help consumers understand how healthy/unhealthy a product is.	 <p>Nutri-Score (France, Belgium, Germany, Spain)</p>
	Informative schemes provide factual information with no guidance to interpret how healthy/unhealthy a product is.	 <p>Per 25g: 586 kJ / 140 kcal, fat 11.3 g, saturates 3.0 g, sugars 6.1 g, salt 1.4 g 7%*, 16%*, 15%*, 7%*, 23%*</p> <p>Per 100g: 2343 kJ / 560 kcal</p> <p>Reference Intakes (food industry) Carbs 480 kcal, Fat 70 g, Saturates 11.5 g, Sugars 5.5 g, Salt 1.2 g 24%, 80%, 27%, 6%, 54%</p> <p>NutriInform ("battery") system (Italy)</p>
	Hybrid schemes provide a mix of factual information and interpretive elements	 <p>Each grilled burger (94g) contains Energy 924 kJ / 220 kcal (11%), Fat 13g (19%), Saturates 5.9g (30%), Sugars 0.8g (<1%), Salt 0.7g (12%) of an adult's reference intake Typical values (as sold) per 100g: Energy 966 kJ / 230 kcal</p> <p>UK traffic light labels combine <i>informative</i> reference intakes and <i>interpretive</i> colour coding</p>
Summary or nutrient-based	Summary schemes combine several nutritional criteria to show an overall indicator of the healthiness of the product. The nutritional criteria can include positive elements (e.g., fruit, vegetable, fibre or whole grain content) as well as nutrients to limit (e.g., fats, sugars and salt).	 <p>Nordic Keyhole (Sweden, Denmark, Norway, Iceland, Lithuania) And Nutri-Score and other endorsement logos</p>

⁴ Jones, A. *et al.* Front-of-pack nutrition labelling to promote healthier diets: Current practice and opportunities to strengthen regulation worldwide. *BMJ Glob. Health* 4:e001882 (2019).

⁵ Kelly B, Jewell J. *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?* Copenhagen: WHO Regional Office for Europe (2018).

⁶ Adapted from Al-Jawaldeh, A, Rayner M, Julia C, Elmadfa I, Hammerich A, McColl K. Improving nutrition information in the Eastern Mediterranean Region: Implementation of front-of-pack nutrition labelling. *Nutrients* 12, 330 (2020).

	<p>Nutrient-specific schemes provide information on a set of nutrients</p>	<p>Each grilled burger (94g) contains</p> <table border="1"> <tr> <td>Energy 924kJ 220kcal</td> <td>Fat 13g</td> <td>Saturates 5.9g</td> <td>Sugars 0.8g</td> <td>Salt 0.7g</td> </tr> <tr> <td>11%</td> <td>19%</td> <td>30%</td> <td><1%</td> <td>12%</td> </tr> </table> <p>of an adult's reference intake Typical values (as sold) per 100g: Energy 966kJ / 230kcal</p> <p>Traffic lights (UK)</p>  <p>Warning labels (Israel)</p> <p>And Reference Intakes and NutrInform</p>	Energy 924kJ 220kcal	Fat 13g	Saturates 5.9g	Sugars 0.8g	Salt 0.7g	11%	19%	30%	<1%	12%
Energy 924kJ 220kcal	Fat 13g	Saturates 5.9g	Sugars 0.8g	Salt 0.7g								
11%	19%	30%	<1%	12%								
<p>Tone of judgement (for interpretive schemes)</p>	<p>Labels with a positive evaluative judgement only. There are often referred to as endorsement logos and are sometimes considered to be health claims (and therefore not included in research).</p>	 <p>Finnish Heart Symbol (Finland)</p>  <p>Healthy Living Guarantee Mark (Croatia)</p> <p>And the Keyhole, Slovenia's Protective Food Logo and other endorsement logos.</p>										
	<p>Labels with negative evaluative judgements only. These only identify foods which have high levels of less healthy nutrients/ingredients for which consumption should be limited.</p>	 <p>Warning labels (Israel)</p>										
	<p>Labels with both positive and negative evaluative judgements.</p>	<p>Each grilled burger (94g) contains</p> <table border="1"> <tr> <td>Energy 924kJ 220kcal</td> <td>Fat 13g</td> <td>Saturates 5.9g</td> <td>Sugars 0.8g</td> <td>Salt 0.7g</td> </tr> <tr> <td>11%</td> <td>19%</td> <td>30%</td> <td><1%</td> <td>12%</td> </tr> </table> <p>of an adult's reference intake Typical values (as sold) per 100g: Energy 966kJ / 230kcal</p> <p>Traffic lights</p>  <p>Nutri-Score</p>	Energy 924kJ 220kcal	Fat 13g	Saturates 5.9g	Sugars 0.8g	Salt 0.7g	11%	19%	30%	<1%	12%
Energy 924kJ 220kcal	Fat 13g	Saturates 5.9g	Sugars 0.8g	Salt 0.7g								
11%	19%	30%	<1%	12%								

In addition to these characteristics, FOP labelling schemes vary in whether they are implemented on a mandatory or voluntary basis, the range of nutrients and ingredients included and the reference amount for nutrients (i.e., per 100 g/ 100 ml or per serving/portion size). Furthermore, interpretive schemes are underpinned by various criteria used to evaluate nutrient content – these criteria are sometimes referred to as a nutrient profile model and, for summary schemes, can be combined into an algorithm to provide an overall score.

Overview of current evidence on FOP labelling

There has been a great deal of research on the impact of nutrition labelling, including FOP labelling, but interpretation of the findings is challenging. Firstly, the studies are very heterogeneous, comparing widely differing types of labels and outcomes in varied settings. There is relatively limited research comparing consumer use and interpretation of different types of FOP labelling schemes in real-world settings. Furthermore, some studies exclude endorsement logos and research is only beginning to accumulate on the newer types of FOP labels (e.g., Nutri-Score, NutrInform, warning labels).

This paper summarises some of the main messages to emerge from research in relation to FOP labelling and consumer preferences, understanding and choice/purchases. In addition, research relating to the potential to encourage product reformulation is summarised.

Consumer preferences

The research suggests that FOP schemes are preferred to back-of-pack nutrition information and more likely to be noticed.⁷ In addition, interpretive FOP labels appear to be preferred to FOP informative labels.⁸ FOP endorsement logo schemes, some of which have been established for a long time, have high a level of recognition and trust.⁹

In terms of comparisons of different FOP labels, a 12-country study in 2019 compared traffic lights, Nutri-Score, Reference Intakes, Health Star Rating and warning labels.¹⁰ Traffic lights were found to generally score highest for trust, liking and, along with warning labels, ease of subjective understanding (i.e. participants consider the symbols easy to understand). No endorsement logos were included.

Consumer understanding

In relation to consumer understanding, the research suggests that graphics, colours and wording help consumers interpret information.¹¹ Interpretive labels have most consistently been shown to improve consumer understanding of the nutritional quality of foods, compared to informative labels.¹² Labels which include indications of nutrients to limit (fats, sugars, salt) or less healthy foods give a more complete picture.¹³ The research also indicates that longer exposure to labels improves understanding of labels over time.¹⁴

⁷ Campos, S. *et al.*, *Op. cit.*; Grunert, K. *et al.* Nutrition knowledge, and use and understanding of nutrition information on food labels among consumers in the UK. *Appetite* 55(2):177-89 (2010); Kelly B, Jewell J. *Op. cit.*; Neal, B. *et al.* Effects of different types of front-of-pack information on the healthiness of food purchases – a randomized controlled trial. *Nutrients* 9:1284 (2017); Storcksdieck genannt Bonsmann S, Wills J. Nutrition Labeling to Prevent Obesity: Reviewing the Evidence from Europe. *Current Obesity Reports* 1(3):134-40 (2012).

⁸ Talati, Z. *et al.*, Consumers' response to front-of-pack labels that vary by interpretive content. *Appetite* 101:205-213 (2016).

⁹ Kelly and Jewell. *Op. cit.*

¹⁰ Talati, Z. *et al.* Consumers' perception of five front-of-package nutrition labels: An experimental study across 12 countries. *Nutrients* 11:1934 (2019).

¹¹ Campos *et al.*, *Op. cit.*; Volkova and Ni Mhurchu, *Op. cit.*; Hersey, J. *et al.* Effects of front-of-package and shelf nutrition labeling systems on consumers. *Nutr. Rev* 71:1–14 (2013); Rohr, M. *et al.* The Color Red Supports Avoidance Reactions to Unhealthy Food. *Exp. Psychol.* 62:335–345 (2015); Cabrera, M. *et al.* Nutrition warnings as front-of-pack labels: Influence of design features on healthfulness perception and attentional capture. *Public Health Nutr.* 20:3360–3371 (2017); Temple N.J. Front-of-package food labels: A narrative review. *Appetite*, 144:104485 (2020).

¹² Campos *et al.*, *Op. cit.*; Volkova and Ni Mhurchu *Op. cit.*; Hawley *et al.*, *Op. cit.*; Cowburn and Stockley *Op. cit.*; Cecchini M, Warin L. Impact of food labelling systems on food choices and eating behaviours: A systematic review and meta-analysis of randomized studies. *Obesity Reviews* 17(3):201-10 (2016); Kanter, R. *et al.* Front-of-package nutrition labelling policy: global progress and future directions. *Public Health Nutrition* 21(8):1399-1408 (2018); Temple, N.J. *Op. cit.*

¹³ Rayner, M. *et al.* Monitoring the health-related labelling of foods and non-alcoholic beverages in retail settings. *Obes. Rev.* 14 (Suppl. 1), 70–81 (2013).

¹⁴ Kanter *et al.*, *Op. cit.*

A 12-country study compared participants' *objective* understanding of traffic lights, Nutri-Score, Reference Intakes, Health Star Rating and warning labels. The study found that all five FOP labels improved participants' ability to rank foods in all three food categories tested (pizza, cake and breakfast cereal) according to their nutritional quality compared to no FOP label. Nutri-Score consistently performed best, followed by traffic lights, Health Star Rating, warning symbols and Recommended Intakes.¹⁵

National studies of consumer understanding of different types of label (including, variously, traffic lights, Nutri-Score, Health Star Rating, warning symbols, recommended intakes, back-of-pack nutrition information panels and no nutrition information) in Belgium, Netherlands and Switzerland found that Nutri-Score performed best (generally followed by traffic lights) for improving participants' ability to correctly rank food products by their nutritional quality.¹⁶

Impact on consumer food choices, purchases and/or intakes

Earlier studies have had mixed results, but in 2016 and 2019 two meta-analyses estimated that FOP labelling increases healthier food choices.¹⁷ Consumers express preferences to purchase products with endorsement logos and some evidence of this is reflected in what they buy.¹⁸ Research suggests that FOP labels increase consumers' intent to buy healthier foods.¹⁹ There is some evidence that negative evaluative judgements (e.g., red traffic lights and D and E scores for Nutri-Score) influence choices and may reduce impulsivity towards unhealthy foods.²⁰

There are limited studies in real-world supermarkets²¹, but those which exist suggest that FOP or shelf labelling have some (limited) success in persuading shoppers to buy healthier products.²²

Comparative studies in France include experimental supermarkets (online and physical), experimental economy studies and a large-scale trial in real conditions in 60 supermarkets. Consistent results from these studies found that FOP labelling improved the nutritional composition of foods purchased, Nutri-Score performing significantly better than traffic lights

¹⁵ Egnell, M. *et al.* Objective understanding of front-of-package nutrition labels: An international comparative experimental study across 12 countries. *Nutrients* 10:1542 (2018).

¹⁶ Vandevijvere S. *et al.* Consumers' food choices, understanding and perceptions in response to different front-of-pack nutrition labelling systems in Belgium: results from an online experimental study. *Archives of Public Health* 78:30 (2020); Egnell, M. *et al.* Compared to other front-of-pack nutrition labels, the Nutri-Score emerged as the most efficient to inform Swiss consumers on the nutritional quality of food products. *PLoS ONE* 15(2):e0228179 (2020); Egnell, M. *et al.* Consumers' responses to front-of-pack labelling: results from a sample from the Netherlands. *Nutrients* 11:1817 (2019); Hagmann, D., Siegrist, M. Nutri-Score, multiple traffic light and incomplete nutrition labelling on food packages: effects on consumers' accuracy in identifying healthier snack options. *Food Quality and Preference* 83:103894 (2020).

¹⁷ Cecchini and Warin, *Op. cit.*; Shangguan, S. *et al.* A meta-analysis of food labeling effects on consumer diet behaviors and industry practices. *Am. J. Prev. Med* 56, 300–314 (2019).

¹⁸ Edenbrandt, A.K., Smed, S. Exploring the correlation between self-reported preferences and actual purchases of nutrition labeled products. *Food Policy* 77(C),71-80 (2018); Smed, S. *et al.* The effects of voluntary front-of-pack nutrition labels on volume shares of products: the case of the Dutch Choices. *Public Health Nutrition* 22(15),2879-2890 (2019).

¹⁹ Temple, N.J. *Op. cit.*

²⁰ Kelly & Jewell, *Op. cit.*; Scarborough, P. *et al.* Reds are more important than greens: How UK supermarket shoppers use the different information on a traffic light nutrition label in a choice experiment. *Int. J. Behav. Nutr. Phys. Act.* 12, 151 (2015); Drichoutis, A.C. *et al.*, *Op. cit.*

²¹ Dubois, P. *et al.* Effects of front-of-pack labels on the nutritional quality of supermarket food purchases: evidence from a large-scale randomized controlled trial. *Journal of the Academy of Marketing Science*. <https://doi.org/10.1007/s11747-020-00723-5> (2020).

²² Temple, N.J. *Op. cit.*

and other systems tested (including Health Star Rating, Tick, Guideline Daily Amount/Reference Intakes) and that improvements were found in all population sub-groups.²³

In relation to intakes, there are some modelling studies, but very few real-life studies. A macro-simulation study from 2016 suggests that the use of a FOP labelling schemes may help prevent a large number of deaths.²⁴ This study found the Nutri-Score label to be the most efficient in terms of decreasing mortality from diet-related NCDs (up to 3.4% on average), including in individuals with low responses to FOP labelling schemes. In a modelling study relating to the Finnish Heart Symbol, as products not complying with the Heart Symbol were replaced by foods complying with the criteria, the mean intake of saturated fatty acids decreased from 14.3% to less than 10% of energy.²⁵ Intakes of low-fat foods were found to be higher in consumers with knowledge of the Keyhole symbol²⁶ The quality of fatty acid intakes was also better in women who understood the Keyhole symbol.²⁷ There is a lack of evidence to date on how different labelling schemes affect actual intakes in real world settings. Similarly, there is a lack of evidence assessing actual (not modelled) health outcomes and comparing impact of different labels.

Evidence relating to reformulation

FOP labelling schemes are primarily set up to inform consumers. However, it is also important to examine the evidence on the extent to which implementation of FOP labelling can encourage reformulation to improve the nutritional quality of food and drink products. It is possible to extrapolate from experience in the US, which found that introduction of mandatory trans fats labelling did drive reformulation to remove trans fats.²⁸ Evidence from New Zealand, the Netherlands, Ecuador and Sweden also suggests that FOP labels can prompt reformulation.²⁹ In addition, food companies report having applied endorsement logo criteria, such as the Keyhole and Choices logos, when developing products.³⁰

FOP labelling has the potential to encourage food product reformulation and improve the nutritional quality of processed foods. The extent to which particular labels will encourage reformulation in any specific context will depend on the detailed nutrient criteria – including the thresholds or algorithm – and how these relate to a country’s national food-based dietary guidelines.

²³ Studies summarized in Julia, C., Hercberg, S. Development of a new front-of-pack nutrition label in France: the five-colour Nutri-Score. *Public Health Panorama* 3(4):537-820 (2017).

²⁴ Egnell, M., *et al.* Modelling the impact of different front-of-package nutrition labels on mortality from non-communicable chronic disease. *International Journal of Behavioural Nutrition and Physical Activity* 16:56 (2019).

²⁵ Raulio, S., Ali-Kovero, K., Tapanainen, H., Toivola, L., Virtanen, S.M., Lahti-Koski, M. Potential effects of heart symbol compliant foods on nutrient intake. *Journal of Nutritional Health and Food Science*. 5(1):1-8 (2017)

²⁶ Larsson, I. *et al.* The ‘Green Keyhole’ revisited: Nutritional knowledge may influence food selection. *European Journal of Clinical Nutrition* 52,776-780 (1999).

²⁷ Larsson, I., Lissner, L. The ‘Green Keyhole’ nutritional campaign in Sweden: do women with more knowledge have better dietary practices? *Eur J Clin Nutr*. 50(5):323-8 (1996).

²⁸ Eckel, R. *et al.* Understanding the complexity of trans fatty acid reduction in the American diet: American Heart Association Trans Fat Conference 2006: Report of the Trans Fat Conference Planning Group. *Circulation* 115:2231–2246 (2007).

²⁹ Vyth, E. Front-of-pack nutrition label stimulates healthier product development: A quantitative analysis. *Int. J. Behav. Nutr. Phys. Act.* 7, 65 (2010); Shangquan, S. *et al.*, *Op. cit.*; Friere, W. *et al.* A qualitative study of consumer perceptions and use of traffic light food labelling in Ecuador. *Public Health Nutr.* 20:805–813 (2016); Ni Mhurchu, C. *et al.* Effects of a voluntary front-of-pack nutrition labelling system on packaged food reformulation: The Health Star Rating in New Zealand. *Nutrients* 9:918 (2017); Young, L., Swinburn, B. Impact of the Pick the Tick food information programme on the salt content of food in New Zealand. *Health Promot. Int.* 17:13–19 (2002).

³⁰ Vyth, E. *et al.* *Op. cit.*; Swedish National Food Agency (2015); Swedish National Food Agency. A Qualitative Study Concerning the Keyhole’s Influence Over 25 Years on Product Development. Uppsala: Ipsos (2015).

Coverage of FOP labelling schemes

To maximise their impact, it is important that FOP labelling schemes achieve a high rate of coverage of food and drink products on the market.

Voluntary schemes have generally struggled to achieve high coverage levels. Five years after introduction of the voluntary Health Star Rating in Australia, for example, the label was present on 31% of products.³¹ In New Zealand, two years after introduction of the Health Star Rating on a voluntary basis, the label was only present on 5.3% of products.³² In France, where Nutri-Score is implemented on a voluntary basis (mandatory implementation is not currently permitted under EU law) it is estimated that the label was being shown on 25% of processed foods two years after official adoption.³³ Research suggests that Nutri-Score is less effective when it is only displayed on some products.³⁴

By their very nature, endorsement logos, such as the Keyhole label, the Finnish Heart symbol and Slovenia's Protective Food sign, are only intended to be displayed on some (healthier) basic food products. The Finnish Heart Symbol is used by all major food companies on the Finnish market and since its launch in 2000, its use has grown steadily, with 100-150 more products a year. It is now used on over 1 400 products, by 83 food industry companies and retailers and 54 high volume vegetable producers. Approximately 10% of products on the Finnish market display the Heart Symbol. In Sweden, the Keyhole is used on 2 850 products. A 2013 study in Ljubljana found that only 2% of sampled foods displayed the Protective Food system.³⁵

Mandatory or voluntary approach?

The evidence base provides some pointers on the likely relative effectiveness of a voluntary compared to a mandatory approach. As described above, voluntary schemes struggle to achieve sufficient coverage of products on the market. In addition, when label implementation is voluntary there is evidence that less healthy products are unlikely to carry FOP labels. This is in fact intended to be the case for endorsement logos, but also appears to be the case for schemes which include negative evaluative judgements. In Australia, for example, three-quarters of products which carried Health Star Rating labels had three or more stars (i.e., they were healthier products).³⁶ Similarly, in the UK traffic light labels were reported to be less likely to feature on packages of categories where there are more foods high in fat, sugar or salt.³⁷

³¹MP Consulting. Health Star Rating System Five Year Review Draft Report. February. Available online: [http://www.healthstarrating.gov.au/internet/healthstarrating/publishing.nsf/Content/D1562AA78A574853CA2581BD00828751/\\$File/Health-Star-Rating-System-Five-Year-Review-Draft-Report.pdf](http://www.healthstarrating.gov.au/internet/healthstarrating/publishing.nsf/Content/D1562AA78A574853CA2581BD00828751/$File/Health-Star-Rating-System-Five-Year-Review-Draft-Report.pdf). (2019)

³²Ni Mhurchu, C. *et al.* Effects of a voluntary front-of-pack nutrition labelling system on packaged food reformulation: The Health Star Rating in New Zealand. *Nutrients* 9, 918 (2017).

³³Oqali. *Déploiement du Nutri-Score: Analyse à Partir des Données Transmises à l'Oqali*. Available online: https://www.oqali.fr/content/download/3635/34510/version/1/file/Oqali+2019_Deploiement_du_Nutri_Score_analyse_a_partir_des_donnees_transmises_a_l_Oqali.pdf

³⁴Hagmann, D., Siegrist, M. Nutri-Score, multiple traffic light and incomplete nutrition labelling on food packages: effects on consumers' accuracy in identifying healthier snack options. *Food Quality and Preference*. 83;103894 (2020).

³⁵Hieke, S. *et al.* Prevalence of nutrition and health-related claims on pre-packaged foods: a five-country study in Europe. *Nutrients* 8(3):137 (2016).

³⁶Jones, A. *et al.* Uptake of Australia's Health Star Rating System. *Nutrients* 10, 997 (2018).

³⁷Van Camp, D. *et al.* Stop Or Go? How Is The UK Food Industry Responding To Front-Of-Pack Nutrition Labels? In *Proceedings of the 115th Joint EAAE/AEA Seminar*, Freising-Weihenstephan, Germany: 580–591 (2010).

The evidence clearly suggests, therefore, that a mandatory approach is necessary to ensure that FOP labelling covers as many products as possible, including those that are high in fats, sugars and/or salt.

FOP labelling and health inequalities

Use of nutrition labels is higher among women, people on higher incomes and/or with more education, as well as those who already have a specific interest in diet and health.³⁸ Problems with understanding and interpretation of the relatively complex numerical information on back-of-pack nutrition information panels are particularly reported among people with lower socioeconomic status.³⁹

It is important that implementation of simplified FOP labelling reduces, rather than amplifies, these socio-economic differences in order to help narrow social inequalities in health across Europe. There is limited research comparing the effectiveness of different FOP labelling systems across socio-economic (SES) groups. In Finland, greater awareness of the heart symbol was found among higher SES groups in the period just after introduction of the symbol, but after five years the socio-economic differences had disappeared.⁴⁰ Emerging research on the Nutri-Score label found improvements in the nutritional quality of shopping baskets across *all* socio-economic groups, with the biggest impact among those on lower incomes.⁴¹

It is also important to note that FOP labelling schemes could have an educational impact – especially over time – to improve understanding of how healthy particular food products are.

Strengths and weaknesses of different types of FOP labelling

Three types of government-endorsed FOP labels are currently in use across Europe. Namely, traffic lights, Nutri-Score and endorsement logos. Tables 2, 3 and 4 summarise the strengths and weaknesses of these systems.

Table 2 Strengths and weaknesses of traffic lights labelling schemes⁴²

Strengths	Weaknesses
<ul style="list-style-type: none"> ✓ Simplified information that is easy to understand ✓ Interpretive to aid healthy choices ✓ Includes an indication of healthy foods and less healthy foods ✓ Colour-coding aids understanding, inclusion of ‘reds’ is particularly useful ✓ Design based on an already understood concept (traffic lights) ✓ Enables comparisons between food categories, within categories and within a specific food type ✓ Allows people to pay attention to particular nutrients of concern/interest ✓ Examples of country implementation and well-established ✓ Potential to drive reformulation of both healthier and less healthy products 	<ul style="list-style-type: none"> ✗ Not as simple as overall summary system scores (e.g., Nutri-Score or endorsement logos) ✗ Consumers may have difficulty identifying the healthiest option when there is trade-off between nutrients ✗ Focuses only on the “negative” nutrients/components ✗ Inclusion in some systems of the noninterpretive element (e.g., percentage of reference intakes) could be confusing ✗ Unless implementation is mandatory, it is more likely to be used on healthier products ✗ In EU context, there are no longer any EU MS that have officially adopted traffic light labelling (post-Brexit)

³⁸ Campos, S. *et al.*, *Op. cit.*; Drichoutis, A.C. *et al.*, *Op. cit.*; Cowburn, G., Stockley, L. *Op. cit.*

³⁹ Campos, S. *et al.*, *Op. cit.*; Cowburn, G., Stockley, L., *Op. cit.*

⁴⁰ Lahti-Koski, M, et al. Awareness and use of the Heart Symbol by Finnish consumers. *Public Health Nutr* 2012; 15:476-82.

⁴¹ Julia, C., Hercberg, S., *Op. cit.*; E Leclerc. *Leclerc et Marque Repère confirmed les résultats positifs du Nutriscore. Communiqué de presse.* 2018 June 25.

⁴² Adapted from Al-Jawaldeh, A. *et al.*, *Op. cit.*

Table 3 Strengths and weaknesses of Nutri-Score⁴³

Strengths	Weaknesses
<ul style="list-style-type: none"> ✓ Simplified information that is easy to understand ✓ Interpretive to aid healthy choices ✓ Includes an indication of healthy foods and less healthy foods ✓ Provides a single overall score for a food; does not require any understanding of nutrients ✓ Design based on an already understood concept in Europe (appliance energy ratings) ✓ The nutrient profile takes into account both “negative” and “positive” components of a food ✓ Enables comparisons between food categories, within categories and within a specific food type ✓ Strong evidence base from extensive R&D ✓ Research suggests it is understood by all population groups, including those who normally do not read labels or who have poor diets ✓ Potential to drive reformulation of both healthier and less healthy products ✓ Growing momentum for implementation by EU Member States 	<ul style="list-style-type: none"> ✗ Does not allow people to pay attention to particular nutrients of concern/interest ✗ A relatively new labelling system which has relatively limited country implementation experience ✗ Unless implementation is mandatory, it is more likely to be used on healthier products ✗ Concerns that the nutrient criteria and underlying algorithm have been developed on the basis the French dietary guidelines and need to be adapted to be appropriate for other countries’ dietary habits, main sources of different nutrients and dietary guidelines (issues include whole grains, quality of fat, salt)

Table 4 Strengths and weaknesses of endorsement logos⁴⁴

Strengths	Weaknesses
<ul style="list-style-type: none"> ✓ Simplified information that is easy to understand ✓ Interpretive to aid healthy choices ✓ Provides a simple logo and does not require any understanding of nutrients ✓ Designs are often based on readily understood visual concepts (e.g., tick, heart) ✓ Enables comparisons within categories and within a specific food type ✓ May meet less resistance than a labelling system which includes “negative” as well as “positive” evaluation of foods ✓ Potential to drive reformulation of healthier products ✓ Wider applications beyond packaged foods (e.g. menu labelling, procurement) ✓ Long-established schemes have high degree of recognition and trust 	<ul style="list-style-type: none"> ✗ Does not include an indication of less healthy foods ✗ Does not cover many foods on the market, including those high in fat, sugar or salt (even if implemented on a mandatory basis) ✗ Does not always enable comparisons between foods categories ✗ Does not allow people to pay attention to particular nutrients ✗ Consumers may overestimate the healthiness of products carrying the logo ✗ Less likely to drive reformulation of least healthy products in some categories

⁴³ Adapted from Al-Jawaldeh, *Ibid.*

⁴⁴ Adapted from Al-Jawaldeh, *Ibid.*

Conclusions from current evidence

In conclusion, consumers clearly prefer simplified FOP labels to back-of-pack nutrient declarations. All FOP labelling schemes can help consumers in their ability to make healthy choices and can encourage food product reformulation. There is emerging evidence that some schemes appear to perform well with lower socio-economic groups. FOP labelling schemes may become more effective over time – the longer a scheme has been implemented, the more impact it can have.

The tables above illustrate that all FOP labelling systems currently used in Europe have advantages and disadvantages. Increasingly, recent studies (which did not include endorsement logos) point to Nutri-Score, followed by multiple traffic lights, as being most effective at improving consumers' objective understanding of the nutritional quality of foods. The highly heterogeneous nature of the evidence base means that it is very difficult to make a decision based on scientific evidence alone, and the effectiveness of schemes may vary between population groups. It is important, therefore, that schemes are well-aligned with national healthy eating advice and take into account the dietary patterns in each country and the specific needs for food product reformulation.

While some labels may be of more interest to particular sub-groups of the population (e.g., people with hypertension may be more interested in traffic lights or warning labels because of specific information about salt/sodium), the target group for FOP labelling should be the whole population.

The evidence clearly suggests that implementation of FOP labelling on a mandatory basis is more likely to be effective than any voluntary scheme.

Recent developments

Globally, there has been an increase in implementation of FOP labelling in recent years.⁴⁵ By 2019, globally 32 governments had endorsed some form of FOP labelling and 31 unique FOP labels relating to nutrition were identified,⁴⁶ with no single predominant scheme.⁴⁷ As mentioned previously 15 countries in the WHO European Region – of which 11 in the EU – were identified in 2018 as having a government-endorsed policy on interpretive FOP labelling (13 of which were endorsement logos).⁴⁸

In light of the proliferation of different FOP labelling schemes in existence, and growing momentum for the introduction of such schemes, new global guidance has been issued. WHO has developed guiding principles and a framework manual for front-of-pack labelling (see Box below) in 2019.⁴⁹ In addition, the Codex Committee on Food Labelling is now working to produce guidance on FOP labelling.⁵⁰ It is not expected that the Codex guidance will recommend a single labelling scheme.

Five overarching principles from WHO's guiding principles and framework manual for front-of-pack labelling

Principle 1: The FOP labelling system should be aligned with national public health and nutrition policies and food regulations as well as with relevant WHO guidance and Codex guidelines.

Principle 2: A single system should be developed to improve the impact of the FOP labelling system.

Principle 3: Mandatory nutrient declarations on food packages are a pre-requisite for FOP labelling systems.

Principle 4: A monitoring and review process should be developed as part of the overall FOP labelling system for continuing improvements or adjustments as required.

Principle 5: The aims, scope and principles of the FOP labelling system should be transparent and easily accessible.

European Union

Within the European Union, under the Food Information to Consumers (FIC) Regulation Member States are allowed to recommend additional forms of information, such as FOP labels, on a voluntary basis.

A number of countries have chosen to adopt, approve or implement 'endorsement logo' schemes to highlight healthier options. The Keyhole labelling system has been in place in Sweden for 30 years and is very well recognised by the population; it has been used in Denmark and Norway since 2009; and in Iceland and Lithuania since 2013. In Finland, the Heart Symbol

⁴⁵ World Cancer Research Fund International. *Building Momentum: Lessons on Implementing a Robust Front-of-Pack Food Label* (2019).

⁴⁶ Jones, A. *et al.* Front-of-pack nutrition labelling to promote healthier diets: Current practice and opportunities to strengthen regulation worldwide. *BMJ Global Health* 4: e001882 (2019).

⁴⁷ Codex Committee on Food Labelling Electronic Working Group. *Discussion Paper on Consideration of Issues Regarding Front-of-Pack Nutrition Labelling*; CX/FL 17/44/7, Agenda Item 7; Codex Alimentarius Commission, Rome (2017).

⁴⁸ Kelly, B., Jewell, J., *Op. cit.*

⁴⁹ World Health Organization. *WHO Guiding Principles and Framework Manual for Front-of-Pack Labelling for Promoting Healthy Diets*. Geneva. <https://www.who.int/nutrition/publications/policies/guidingprinciples-labelling-promoting-healthydiets/en/> (2019).

⁵⁰ Codex Committee on Food Labelling Electronic Working Group, *Op. cit.*

had been used since 2000 to endorse “better-for-you” choices and there is evidence that it is recognised by a very high proportion of the population. In both Finland and Sweden, the schemes are integrated into national nutrition guidelines; used in public procurements for foods and meals served in public institutions; and used by health professionals. In Denmark, the Danish Whole Grain logo is in use in addition to the Keyhole. The industry-initiated Choices logo is used in Belgium, the Czech Republic and Poland, but was stopped in the Netherlands by the Dutch Health Minister in 2016. The Croatian government has introduced the voluntary FOP Healthy Living logo in 2015. In Slovenia, the government-endorsed Little Heart logo (also known as the protective food logo) and the text “Protect your Health” is used to highlight healthier options within the same category.

In 2017, when *Transforming European food and drink policies for cardiovascular health* was published, in addition to the endorsement logos described above, the voluntary FOP traffic light scheme had been in place in the UK since 2013 and the French government had announced its intention to adopt Nutri-Score.

Since then, the French Nutri-Score scheme was officially endorsed by the government in France in 2017 and was adopted in Belgium in 2019. The German government has notified the European Commission of its intention to adopt Nutri-Score. Luxembourg, the Netherlands and Spain have also said that they are planning to adopt Nutri-Score (although, as of late April 2020, they had not notified the Commission). Nutri-Score is also on the shelves in countries where governments have not endorsed it: Austria; Portugal; and Slovenia. The European Consumer Organisation (BEUC) endorsed it in 2019. In April 2020, 40 stakeholders including consumer groups, policy makers, academics, food companies and retailers called for Nutri-Score to become mandatory in the EU.⁵¹ Danone, Kellogg and Nestle have declared that they will use Nutri-Score.

Some countries interested in implementing Nutri-Score have expressed concern that the underlying algorithm does not adequately reflect their own national food-based dietary guidelines and/or is not adapted to their current dietary patterns. For example, in the Netherlands one study concluded that for certain product groups Nutri-Score is not aligned with Dutch dietary guidelines.⁵² In December 2019 the government in the Netherlands declared that it plans to adopt Nutri-Score – but the scheme will not be introduced on Dutch products immediately, as the Dutch government has stated that the underlying algorithm is not entirely congruent with the country’s dietary guidelines. In order to address these concerns, a European Nutri-Score committee has been established. This committee comprises representatives from France, Belgium, Netherlands, Luxembourg, Spain and Switzerland. The precise mandate is currently being agreed, but the outcome is expected to be advice on possible revisions to the Nutri-Score algorithm. The group’s work has been delayed due to the COVID-19 pandemic.

In January 2020, Italy notified the Commission of its intention to adopt its own NutrInform FOP scheme, sometimes called ‘the battery’ system because it uses columns, or battery icons, to display the percentage of energy, fats, saturated fats, sugars and salt contained in the portion of product in relation to reference daily intake.

⁵¹ Cross-sector call for Nutri-Score on all foods in EU. 28 April 2020. <http://www.beuc.eu/press-media/news-events/cross-sector-call-nutri-score-all-foods-eu>

⁵² Van Tongeren C., Jansen L. Adjustments needed for the use of Nutri-Score in the Netherlands: Lack of selectivity and conformity with Dutch dietary guidelines in four product groups. *International Journal of Nutrition and Food Sciences* 9(2):33-42 (2020).

Another important recent development is that the UK has now left the European Union, meaning that the traffic lights FOP system is no longer officially adopted or endorsed by any EU Member State.

The FIC calls on the Commission to submit a report on the use of additional forms of expression and presentation, on their effect on the internal market and on the advisability of further harmonisation of those forms of expression and presentation. This report, due on 13 December 2017, was adopted on 20 May 2020. It concludes that “the Commission will in due course prepare a legislative proposal in line with the objectives of the Farm to Fork Strategy and with better regulation principles.” According to the *Farm to Fork Strategy*, the Commission proposal will come out in the last quarter of 2022.

Non-EU countries in Europe

The only reports of government-endorsed FOP labelling schemes being implemented within the WHO European Region but outside the EU are Norway and Iceland, where the Keyhole is used, the UK (traffic lights) and Israel (warning labels and an endorsement logo).⁵³ There is also potential consideration of use of Nutri-Score in Switzerland.

Conclusion

In conclusion, there is increasing momentum at the global and European levels for the implementation of simplified FOP labelling, and the environment is now more favourable to introduction of a single EU-wide scheme. Following the UK’s departure from the EU, support for EU-wide implementation of traffic lights is deemed less tenable. In the period since 2017, the Nutri-Score labelling scheme has gained considerable traction across Europe, although concerns have emerged that the underlying algorithm needs to be adapted and aligned with national food-based dietary guidelines, in order to be appropriate for prevention of cardiovascular disease in all European countries.

⁵³ WCRF Nourishing database (<https://www.wcrf.org/int/policy/nourishing-database>); Kelly, B., Jewell, J. *Op. cit.*

EHN Recommendations

- **The EU should adopt a fully-harmonised mandatory simplified, interpretive FOP nutrition labelling scheme.** This could have a positive effect on CVD prevalence and mortality and could address inequalities in CVD in the EU. Obviously, FOP labelling is only one element in a comprehensive nutrition policy package. According to research, mandatory schemes are preferable as these will ensure that all food and (non-alcoholic) drinks are covered and, thus, are more likely to decrease the burden associated with diet-related NCDs.

Furthermore, all people living in the EU should benefit from an evidence-based FOP nutrition labelling system. Given concerns that several EU member states, notably in Central and Eastern European countries, may not introduce effective FOP nutrient labelling unless mandated by the EU, a mandatory EU-wide approach is required. From an internal market perspective this would also create a simplified operating environment for food manufacturers.

- **Based on current evidence and recent developments, the EU should consider adopting Nutri-Score conditional upon a review and adaptation of the underlying algorithm and adoption of a new algorithm.** The condition for acceptance is that the new algorithm must take into account national food-based dietary guidelines to achieve changes in dietary habits to promote cardiovascular health, as well as dietary health more broadly, across all EU Member States.
- **A scientific committee of independent experts should be established to review and adapt the algorithm underpinning Nutri-Score and to assess whether and under what conditions the algorithm may be converted into a pan-European label.** The workings of the committee must be transparent, and robust safeguards against conflicts of interest are essential. Committee members should be drawn from different regions within Europe, representing varying dietary patterns. The recommendations of the scientific committee must be published and open for consultation with all stakeholders.
- **Pending an EU-wide scheme, EU Member States and other countries within the WHO European Region that do not yet have a government-endorsed scheme should opt for Nutri-Score or another government-endorsed scheme already in use in another European country while ensuring that the underlying algorithm supports national dietary guidelines.** For maximum impact, countries in the WHO European Region but outside the EU should implement the scheme on a mandatory basis.