World Health Organization

stop
Science and Technology in childhood Obesity Policy

FOOD SYSTEMS FOR HEALTH

REFORMULATION OF FOOD AND BEVERAGE PRODUCTS FOR HEALTHIER DIETS: POLICY BRIEF

Foods that are energy dense and nutrient poor are widely available, whether bought from retailers, takeaways or deliveries, or eaten at restaurants that are supplied by food manufactures. As a result, many people are eating large amounts of food high in fat, sugars and salt/sodium *(1)*; this contributes to unhealthy diets, which currently cause 8 million premature deaths globally every year *(2)*. In recent years, policy-makers have increasingly recognized that actions are needed to make the supply of foods and the food environment healthier, in addition to increasing knowledge and providing information to educate consumers.

Measures are required to eliminate industrially produced *trans*-fatty acids (TFA) from the food supply, reduce the energy content per portion and lower the levels of saturated fats (SFA), sugars and salt/sodium in food. Food reformulation policies are an important part of a suite of policy actions to support healthy and sustainable diets. It can contribute to ensuring access to safe and nutritious food for all, and shifting towards healthier and sustainable consumption patterns, because individuals do not need to change what they buy or make a conscious effort to seek healthier options.

Food reformulation is the process of altering the processing or composition of a food or beverage product, to improve its nutritional profile or to reduce its content of ingredients or nutrients of concern *(3)*. Reformulation of processed food can lead to products with a healthier profile; however, reformulation does not eliminate the concern for high consumption levels of highly processed foods. Therefore, consumption of fresh and home-prepared foods, ideally locally produced, should be prioritized over consumption of highly processed foods, including reformulated products.

Food reformulation is the process of altering the processing or composition of a food or beverage product, to improve its nutritional profile or to reduce its content of ingredients or nutrients of concern

A recent review on the impact of food reformulation on food choices, nutrient intake and health status *(4)* was conducted as part of the STOP project. The review indicated the following:

- People usually accept, buy and consume reformulated products, resulting in an overall improvement in the nutritional composition of food purchases. Salt reduction in particular has higher acceptance by consumers.
- Overall, food reformulation tends to lead to improved nutritional intakes. Analysing studies from Europe and the United States of America (USA), the review found that daily population-wide salt intake after reformulation was 0.57 g lower than before. Similarly, product reformulation to reduce TFA content results in reduced TFA intake; for example, an overall decrease in intake of 38–85% was reported in Costa Rica, North America and the United Kingdom of Great Britain and Northern Ireland (United Kingdom).
- After limiting industrially produced TFA, or banning partially hydrogenated oils (PHO) in processed and restaurant foods, there was a reduction of 4.3–6.2% in mortality from cardiovascular disease (CVD) in Austria, Denmark, Costa Rica and the US. One British study on sodium reduction in foods showed a positive effect on blood pressure. The three studies that investigated the effect of reformulation on children and adolescents found similar results to those seen in adults.

ABOUT WHO'S FOOD SYSTEMS FOR HEALTH

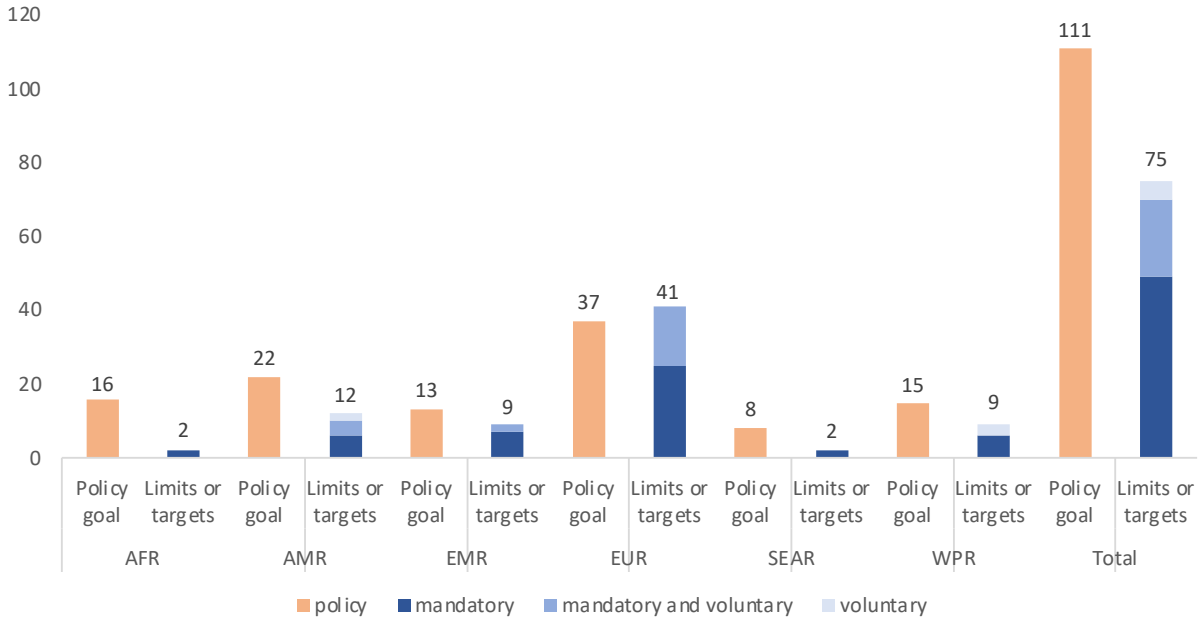
Today's food systems are simply failing to deliver healthy diets for all. In addition to the suffering this causes to individuals and families, the economic costs to society due to the health and environmental impacts of current dietary patterns are heavy, and often hidden. If food systems are transformed, they can become a powerful driving force towards ending hunger, food insecurity and malnutrition in all its forms. There is no single solution, instead it is recommended to implement coherent portfolios of policies, investments and legislation that prioritise health. At the same time, it is also important to ensure a fair price for the producer and reflect the true environmental, health and poverty costs.

WHO's Food Systems for Health narrative highlights five different ways in which food systems impact on health and embraces the interconnectedness of humans, animals, and the planet (9). The malnutrition pathway comprises the aspects of food systems that lead to unhealthy diets or food insecurity and therefore contribute to malnutrition in all its forms. Malnutrition and hunger pose the highest risks to human health in terms of death and illness and include obesity, micronutrient deficiencies, stunting, wasting, communicable and noncommunicable diseases and mental illness.

Increasingly, countries are introducing legislation to eliminate industrially produced TFA *(5)*, and there is growing momentum for implementation of reformulation programmes, particularly to reduce salt/sodium *(6)*. Nonetheless, levels of unhealthy fats, sugars and salt/sodium remain too high in many products. There is an urgent need for accelerated regulatory action on TFA elimination and salt/sodium reduction, and more ambitious and wide-ranging reformulation programmes, including those to address sugars, SFA, energy and portion sizes, and restaurant, takeaway and home delivery food. Countries have committed to acting to promote healthy diets and addressing malnutrition in all its forms *(7-9)*. The Framework of Action (from the Second International Conference on Nutrition, held in 2014) recommends "encouraging gradual reduction of SFA, sugars and salt/sodium and *trans* fat from foods and beverages" *(10)*.

According to the World Health Organization (WHO) Global database on the implementation of Nutrition Actions (GINA), 111 countries have national policies, strategies and plans to implement food reformulation. Moreover, 75 countries have set mandatory limits or voluntary reformulation targets. Of these countries, 70 have set mandatory limits (21 of these countries also have voluntary targets) whereas five have voluntary targets only (Fig. 1). Many countries have set a policy goal to stimulate reformulation rather than adopting mandatory limits or voluntary targets for reformulation. Among the countries that have set one or more mandatory limits, these are most commonly for industrially produced TFA. In the WHO European Region, the European Union (EU) TFA regulation is driving a higher number of countries to establish targets or limits. Only a few countries in the African Region and South-East Asia Region, and less than a third of countries in the Western Pacific Region implement mandatory limits or voluntary targets.

Figure 1. **Policy goals and measures with mandatory limits and/or voluntary targets by WHO region. Mandatory limits mean the country has one or more mandatory limit for unhealthy fats, sugars or sodium**

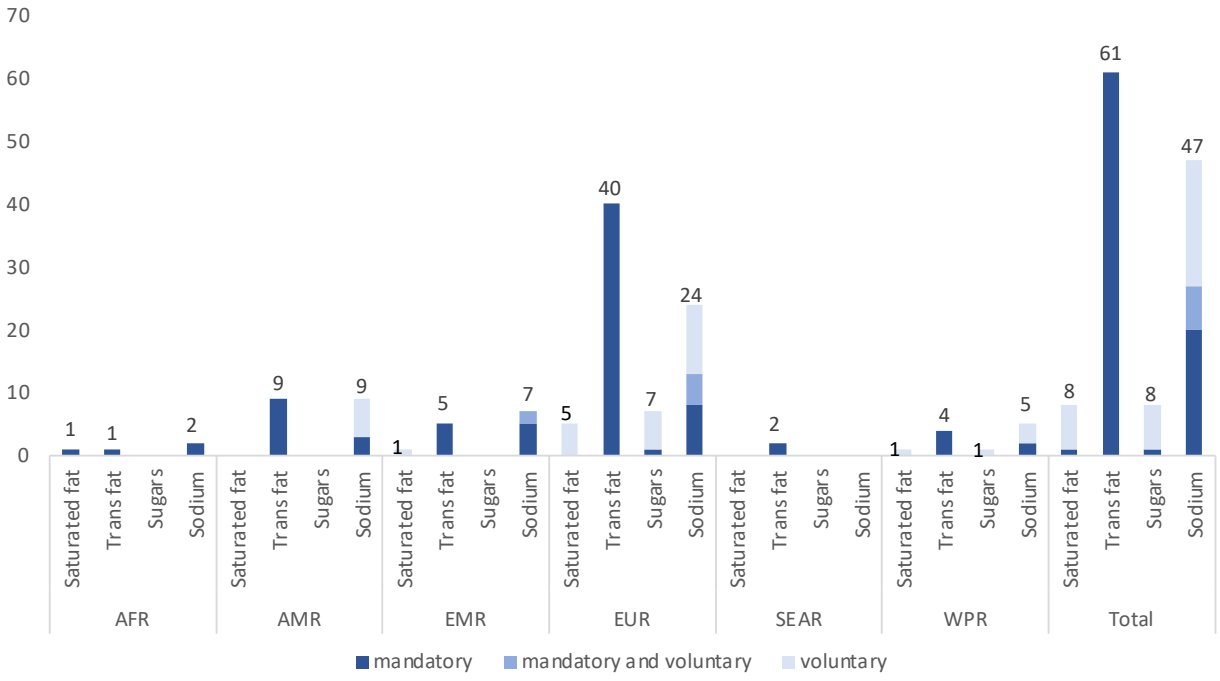


AFR: WHO African Region; AMR: WHO Region of the Americas; EMR: WHO Eastern Mediterranean Region; EUR: WHO European Region: SEAR: WHO South-East Asia Region; WPR: WHO Western Pacific Region; WHO: World Health Organization.

Source: WHO Global database on the Implementation of Nutrition Action (GINA)

Elimination of industrially produced TFA from the food supply is a low-cost policy measure that has significant long-term health benefits. Similarly, it is feasible to set maximum limits for the amount of salt/sodium in different food categories and reformulate them accordingly, to reduce salt/sodium intake. Both are recommended as effective interventions to reduce unhealthy diets and tackle noncommunicable diseases (NCD) *(11)*. Countries have also taken action to reduce SFA and sugars in selected products (e.g. milk or dairy products with reduced fat, and beverages with reduced sugars levels), although these are less often assigned set limits or targets in national policies. Fig. 2 provides a 2022 snapshot of the distribution of mandatory or voluntary approaches to reformulation for each of the nutrients of concern within the WHO regions. Elimination of industrially produced TFA has progressed the furthest, with 61 countries implementing mandatory limits globally. Sodium reformulation is also implemented by 47 countries, half of which are in the WHO European Region.

Figure 2. **Mandatory limits or voluntary targets by nutrient and WHO region**



AFR: WHO African Region; AMR: WHO Region of the Americas; EMR: WHO Eastern Mediterranean Region; EUR: WHO European Region: SEAR: WHO South-East Asia Region; WPR: WHO Western Pacific Region; WHO: World Health Organization.

Source: WHO Global database on the Implementation of Nutrition Action (GINA).

WHY IMPLEMENT PRODUCT REFORMULATION POLICIES?

The purpose of implementing food and beverage product reformulation policies is to deliver benefits for public health, individuals and businesses:

- **Public health:** By reducing excessive consumption of unhealthy fats, sugars or salt/sodium from processed food products, individuals and populations improve their diets; in turn, this reduces the risk of diet-related NCDs, disability and death, benefitting all socioeconomic groups.
- **Individuals:** Reformulation improves the nutrient quality of foods and helps individuals to consume healthier diets.
- **Businesses:** Reformulation targets or limits create a level-playing field across the food-processing sector. Although there may be an initial investment in reformulation, developing products with a better nutrition profile offers businesses the opportunity to improve their brand and reach more consumers interested in their health. These products may also avoid being subject to taxation measures aimed at unhealthy products and may face fewer marketing restrictions and trade barriers.

Eliminating industrially produced TFA from the food supply

High intakes of industrially produced TFA are strongly associated with increased risk of coronary heart disease (CHD), and TFA intake is estimated to be responsible for hundreds of thousands CVD deaths globally every year *(12)*. WHO recommends reducing the intake of TFA to less than 1% of the total energy intake, and using unsaturated fatty acids as a replacement *(13)*. Elimination of industrially produced TFA is feasible and achievable – several countries have virtually eliminated industrially produced TFA from their food supply *(12)*.

WHO recommends that countries implement either of the two best-practice policies: a mandatory national limit of 2 g of industrially produced TFA per 100 g of total fat in all foods; and a mandatory national ban on the production or use of PHO as an ingredient in all foods *(14)*.

The WHO-recommended best-practice policies can virtually remove industrially produced TFA from the food supply. This can be done without increasing levels of SFA *(14)*, while reducing TFA intake at the population level *(15-17)*.

National or local policies that have succeeded in reducing industrially produced TFA intakes have led to favourable changes in population's lipid profiles *(18, 19)*, and have reduced the prevalence of stroke *(20)* and CVD deaths *(21, 22)*. In 2021, best-practice TFA policies had come into effect in 40 countries (covering 1.4 billion people) and six further countries had passed a best-practice TFA policy that will come into effect in the next two years (covering an additional 1.7 billion people); in combination, these policies will cover about 3.1 billion people *(23)*. To eliminate industrially produced TFA, governments and industry, including suppliers of oils and fats, need to accelerate action.

PUBLIC HEALTH IMPACT OF DENMARK'S GROUND-BREAKING TFA LEGISLATION

In 2003, Denmark became the first country in the world to regulate the TFA content of food products. The legislation came into force in January 2004 and almost eliminated industrially produced TFA from the country's food supply. Before 2003, trends in the prevalence of CVD deaths in Denmark were similar to those in other Organisation for Economic Co-operation and Development (OECD) countries. In 2007, cardiovascular mortality rates decreased on average by 14 deaths per 100 000 people per year compared with the populations of other OECD countries *(21)*.

Reformulation to reduce the amount of salt/sodium in processed food

Excessive intake of salt/sodium increases blood pressure and is associated with a higher risk of CVDs, including stroke and deaths from CHD *(24)*. It is estimated that high salt/sodium intake is responsible for 3 million deaths globally every year *(25)*. Reducing salt/sodium intake is an effective way to lower blood pressure and thus to reduce CVDs and related conditions *(26)*. WHO recommends a reduction to less than 2 g/day sodium (5 g/day salt) in adults *(26)*. In 2013, the World Health Assembly adopted a global target of a 30% reduction in mean population intake of salt/sodium by 2025 *(27)*, but the world is not currently on track to meet this goal *(28)*.

In many high-income countries, and increasingly in low- and middle-income countries, a significant proportion of the salt/sodium in the diet comes from manufactured foods such as bread, cereal and grains, processed meats and dairy products *(29)*. An effective way to reduce population salt/sodium intake is through lowering the sodium content of foods that are consumed frequently and therefore contribute to a high intake of this nutrient.

Country experience suggests that setting well-designed reformulation targets can lead to considerable progress in reducing salt/sodium levels in foods *(30, 31)* and population salt/sodium intakes *(4, 30-32)*. At least 17 countries have reported reductions in population salt intake, with 12 countries reporting a substantial (>2 g/day) or moderate (1–2 g/day) decrease *(32)*.

Many countries have implemented a stepwise approach by setting a series of progressively more ambitious targets for reformulation. Mandatory reformulation appears to achieve larger reductions in population-wide salt consumption than other interventions such as voluntary reformulation, school interventions, short-term dietary advice and nutrition labelling *(31)*. Reformulation of food products to reduce salt/sodium levels is estimated to be a cost-effective strategy in countries of all income levels *(11, 33)*. Current reformulation efforts, however, have been inconsistent in terms of measures adopted, food product categories targeted and level of the limits or targets; hence, such efforts have not yet fulfilled their potential. To drive progress on this issue

GLOBAL SODIUM BENCHMARKS *(34)*

To accelerate progress on sodium reduction — and recognizing that the setting of appropriate national sodium targets is a highly complex, technical issue — WHO has established a set of global benchmarks for a wide range of food categories *(35)*. The benchmarks were developed through consultation with experts and were informed by data collected on sodium targets set in 41 countries, one WHO region and one WHO subregion. Benchmarks are defined as maximum targets of sodium (in mg per 100 g/mL) for specific subcategories of food; in principle, they are based on the lowest value for each subcategory from existing national or regional targets. These benchmarks are intended to complement existing national and regional efforts and initiatives, and to serve as a reference for such initiatives.

The following countries and territories have set mandatory salt/sodium limits for various foods, such as bread, cereal products, processed meats, cheeses, crisps and snacks, soups and stocks, or tomato products: Argentina, Austria, Bahrain, Belgium, Bulgaria, Colombia, Croatia, Greece, Hungary, Iran (Islamic Republic of), Iraq, Jordan, Kiribati, Latvia, Malaysia, Mauritius, Montenegro, the Netherlands, Oman, Paraguay, Portugal, Saudi Arabia, Slovakia, South Africa, Spain, Uzbekistan and the occupied Palestinian territory, including east Jerusalem.

Reformulation to reduce levels of sugars in foods and beverages

WHO recommends limiting intake of free sugars[1] to less than 10% of total energy intake, and suggests a further reduction in the intake of free sugars to below 5% of total energy intake *(35)*. Given the success with incremental reductions in salt/sodium levels through government-led reformulation programmes, a growing number of national authorities are applying the same approach to sugars reduction and have set targets for sugars levels in different food and beverage categories. Modelling studies predict reductions in energy intake from reformulation of sugar-sweetened beverages and sugar-dense foods, and predict associated health benefits *(36)*. Results from the limited trials available to date suggest that consumption of sugar-reformulated products for 8–10 weeks can reduce sugars intake by around 12% and result in average weight loss of 1 kg *(37)*.

The evidence base from real world experience of government-led initiatives for reducing sugars in foods is less well developed, but some modest to large reductions in sugars levels across the food supply have already been seen *(38)*. Other policy levers, such as taxation or nutrition labelling, can help to drive reformulation efforts. For example, following the introduction of a soft drink industry levy in the United Kingdom, the proportion of potentially taxable drinks with sugars levels above the lower levy threshold (5 g sugars 100 mL) fell by 34 percentage points, suggesting that the levy had incentivized manufacturers to reformulate their products *(39)*. There was a 43.7% reduction in the total sugar content per 100ml between 2015 and 2019 for the drinks subject to the levy, and the total sugar purchased per household from drinks subject to the levy has also decreased across all socio-economic groups (between 32.7% and 38.5% reduction) *(38)*.

[1] Free sugars include monosaccharides and disaccharides added to foods and beverages by the manufacturer, cook or consumer, and sugars naturally present in honey, syrups, fruit juices and fruit juice concentrates.

REFORMULATION TARGETS FOR SODIUM, SUGARS AND SFA IN AUSTRALIA

Launched in 2020, Australia's Healthy Food Partnership Reformulation Program has established voluntary reformulation targets for sodium, sugars and SFA *(40)*. In 2021, targets for the maximum level of sugars were issued for breakfast cereals, flavoured milk, muesli and snack bars, non-alcoholic beverages and sweetened yoghurt, to be achieved by June 2025 or 2026, depending on the food category. SFA targets were set for sausages and savoury pastries *(40)*.

Reformulation to reduce SFA levels in food

Reduced intake of SFA is associated with a significant reduction in risk of CVD when the SFA are replaced with unsaturated fats. WHO suggests reducing the intake of SFA to less than 10% of total energy intake *(13)*. Updated WHO guidelines suggest using polyunsaturated fatty acids as a source of replacement when reducing the intake of SFA. SFA can be replaced also by monounsaturated fatty acids from plant sources, or carbohydrates from whole grains, vegetables, fruits and pulses *(41)*. Also, modelling studies and country experience suggest that reformulation could reduce SFA consumption with a potential impact on NCD deaths *(36)*. Reformulation programmes need to be carefully designed to ensure that reduction of SFA levels does not lead to replacement with other nutrients of public health concern, such as free sugars.

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FINLAND'S LONG-TERM EFFORTS TO REDUCE SFA INTAKES AND LEVELS IN FOOD

Public concern about high rates of CVD deaths among young men in Finland in the 1970s was the catalyst for the famous North Karelia project — later extended across Finland — which led to reductions in SFA intakes, blood cholesterol and ran 80% reduction in CVD deaths among people of working age *(42)*. As part of this project, engagement with the Finnish food industry resulted in reductions in levels of total fat or SFA (or both) in a range of foods *(43)*. More recently, the Finnish Food Authority has been encouraging the food industry to issue nutrition commitments – including on quality of fats – as part of the country's operational commitments for sustainable development. Priority food groups for reformulation to reduce SFA or TFA include dairy products, cheese, convenience foods, meat products, spreads and bakery products *(44)*. One condition is that reducing SFA should not lead to a higher content of *trans*-fats, or added sugar, salt or energy.

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Portion size and energy

Portion sizes of processed food have increased over recent decades in many settings *(45)*. Adults and children consistently consume more food and beverages when offered larger sized portions, packages or tableware *(45, 46)*. Sustained reductions may be effective to reduce average daily consumption of energy *(45)*.

Limiting portion and package size to reduce energy intake and the risk of overweight/obesity is also a WHO-recommended intervention *(11)*. Reducing portion sizes may also contribute to reducing intakes of sugars, salt and SFA. For example, modelling studies predict that measures to limit portion size of sugar-sweetened beverages would generate substantial health benefits and long-term cost savings *(47, 48)*.

ENERGY REDUCTION PROGRAMME IN THE UNITED KINGDOM, BUILDING ON SUCCESSFUL SALT REDUCTION PROGRAMME

The United Kingdom launched a successful salt reduction programme that has set five waves of progressively more stringent sodium targets since 2004, leading to reductions of up to 45% in sodium levels in some products and a 15% drop in population salt intakes *(49, 50)*. Alongside this programme, the United Kingdom aims to reduce the calories in a range of everyday foods consumed by children. In 2020, Public Health England set out the calorie reduction ambitions for different food sectors to achieve by 2024 – a 10% reduction in most manufactured foods and a 20% reduction for most categories in the eating out, takeaway and delivery sector – and published guidelines for the levels of energy in different food categories *(51)*.

Reformulation and food safety

Reducing the fats, sugars and salt/sodium in food often implies changing the way the food is processed or the amount or type of ingredients it contains. When these modifications are gradual, they do not impact the physicochemical and sensorial characteristics of the food or consumer acceptance in the short term. However, they may affect the label requirements and food safety *(52)*.

Sugars (e.g. sucrose) and salt (sodium chloride) trap water, which diminishes the water available for the growth of microorganisms, including pathogens. Salt is traditionally an essential ingredient in preservation methods, and even at low concentrations it inhibits the development of microorganisms and some pathogens. Adequate measures can be put in place to preserve food safety while reducing salt and sugars.

Reformulation to reduce energy density by replacing sugars or fats incorporates new ingredients into the food, potentially affecting their safety. Ingredients from novel sources or the same ingredients from different extraction processes or applied in a separate step in the processing can incorporate allergens and introduce physical, chemical or biological risks that were absent from the original formulation *(53)*. Food safety should therefore be an element to consider in reformulation policies, but it should not be considered an obstacle towards it.

GUIDANCE AND IMPLEMENTATION SUPPORT

Technical packages of resources and capacity-building support are available to help in implementing TFA elimination and salt/sodium reduction. For successful reformulation programmes, it is important to focus on the main food and beverage sources of the target nutrients, collect data on consumption and sales, set time-bound ambitious but achievable targets, and monitor and report on progress made by industry in an independent and transparent manner. It is also critical to include – as widely as possible – different sectors of the food industry (e.g. retailers, manufacturers, restaurants, takeaways and deliveries). One caveat is that gains obtained by reformulation in certain food products can be cancelled out by increases in sales of other products or in portion sizes. Therefore, it is important to be vigilant against such increases so that the total level of intake does not increase *(38)*.

TFA elimination

REPLACE is an action package developed by WHO to provide guidance on the necessary steps to eliminate industrially produced TFA *(14)*. These steps are as follows:

- **Re**view dietary sources of industrially produced *trans*-fats and the landscape for required policy change.
- **P**romote the replacement of industrially produced fats with healthier fats and oils.
- **L**egislate or enact regulatory actions to eliminate industrially produced *trans*-fats.
- **A**ssess and monitor *trans*-fat content in the food supply and changes in *trans*-fat consumption in the population.
- **C**reate awareness of the negative health impact of fats among policy-makers, producers, suppliers and the public.
- **E**nforce compliance with policies and regulations.

WHO offers a technical framework and comprehensive implementation resources online *(55)*. To support country assessments of TFA, a global laboratory protocol has been developed for measuring TFA levels in foods *(55)*.

WHO is committed to providing technical support and building regulatory capacities to help countries to accelerate best-practice policy development, implementation and enforcement. Regulatory and laboratory capacity-building trainings have been developed and delivered in several regions *(24)*. Other resources developed by academia and nongovernmental organizations (NGOs), can complement these efforts.[2]

For example, in 2019, the Knowledge Exchange Network on Trans Fat Elimination was established by the NCD Alliance; the network provides a virtual platform for civil society organizations working on TFA elimination to share experiences and lessons learned *(57)*.

The WHO progress report describes the global, regional and national situations as well as progress made over the past year in countries and discusses challenges and opportunities for future action. The report is published annually in a countdown to the 2023 goal of global elimination of industrially produced TFA *(58)*.

Reformulation to reduce salt/sodium

In 2016, WHO issued guidance to support salt/sodium reduction – the SHAKE technical package – which sets out five key action areas *(59)*:

- **S**urveillance — measure and monitor salt/sodium use.
- **H**arnessing industry — promote the reformulation of foods and meals to contain less salt/sodium.
- **A**dopt standards for labelling and marketing — implement standards for effective and accurate labelling and marketing of food.
- **K**nowledge — educate and communicate to empower individuals to eat less salt/sodium .
- **E**nvironment — support settings to promote healthy eating.

A priority component of a successful reformulation plan is the use of maximum limits in food. Setting timebound limits for salt levels in foods and meals is an achievable goal for the food industry to implement.

[2] See, for example, the LINKS toolkit (56). LINKS is a collaborative effort of WHO, the US Centers for Disease Control and Prevention (CDC) through the CDC Foundation, and Resolve to Save Lives (an initiative of Vital Strategies).

WHO encourages countries and industry to implement the global sodium benchmarks *(34)*. WHO's harmonized global benchmarks will show countries how they can progressively lower their targets based on their local food environments, and will encourage industry to lower the sodium content in processed foods accordingly.

Other resources developed by academia and NGOs complement the SHAKE package (see general resources section below).

Universal iodization of salt is a recommended WHO intervention to eliminate iodine deficiency disorders. It is important that efforts to reduce sodium intake are coordinated with iodine deficiency elimination programmes to avoid jeopardizing the success of this intervention. In principle, if there is documented reduction in salt intake, it will be necessary to increase the concentration of iodine in salt to the levels that WHO recommends *(60)*.

LESSONS LEARNED FROM COUNTRY EXPERIENCE

The following key lessons have emerged from implementing reformulation policies and programmes in different countries:

1. Political commitment and longer-term vision

Mid- and long-term political commitment is needed to initiate and sustain a reformulation and TFA elimination programme. Advocacy activities are important to raise awareness, foster political will and mobilize resources.

DATA-INFORMED POLICY ACTIONS TO REDUCE SODIUM INTAKE IN BRAZIL

Estimating the health impact and costs to health systems and society of high salt/sodium intakes, or modelling the potential benefits of sodium reduction interventions can help to generate political support for strong reformulation programmes. For example, a study in Brazil examined the impact of salt/sodium reduction on mortality and costs related to CVD in the country. Every year, premature deaths caused by CVDs cost the Brazilian health system over US$ 84 million and cost US$ 827 million in lost productivity. The study found that 46 651 deaths could have been prevented if the population consumed an average of 2 g of sodium (5 g of salt) per day *(61)*. This enabled estimation of the impact of different sodium reduction interventions – and even comparison of the impact of different salt/sodium reformulation target levels – and provided evidence to support a robust reformulation programme.

2. Clear government leadership and a transparent process

Reformulation programmes are most likely to be successful if led by the government. If government leadership is not possible, an NGO or civil society group could lead the work through a transparent process, with government support.

GOVERNMENT APPROVAL AND MONITORING OF COMMITMENTS IN THE ISLAMIC REPUBLIC OF IRAN

The Islamic Republic of Iran has implemented a government-led approach to reducing salt/sodium levels in a range of food and beverage products. In 2015, mandatory maximum salt levels were established for commonly consumed canned foods, salty snacks, sauces and all types of bread. The maximum levels for salt in bread were then further reduced to 1% in 2019 *(62, 63)*. Permitted salt/sodium levels were also reduced in standards for several products including cheese, yoghurts and fermented drinks *(63, 64)*. Over the same period, levels of SFA were reduced in oils, snacks, biscuits and confectionery, whereas TFA levels were reduced in food products and oils *(62)*.

3. Access to accurate and reliable data

Data on fats, sugars, and salt/sodium levels in foods are needed in order to monitor intakes; identify the key sources of unhealthy fats, sugars, and salt/sodium in the diet; establish baseline levels; set appropriate limits or targets and monitor progress. Where available, sales data are also important to help identify the top selling products and assess the overall impact of reductions. Data on population intakes is also important, but most countries are consuming well over the recommended amounts of salt/sodium, sugars and unhealthy fats; therefore, countries should not wait for intake data to be available before taking action.

It can be a challenge to access baseline data on the levels of sodium, sugars or fats in food and beverage products and to monitor changes with up-to-date data; hence, countries have adopted different approaches to data collection. Approaches include shop and restaurant surveys of declared levels (on labels or menus), direct chemical analyses and, in countries where online food shopping is common, extraction of nutrition data from retail websites. Publication and dissemination of the data are important to ensure transparency and accountability, and to incentivize efforts to gather data and monitor changes.

ROBUST DATA FOR MONITORING PROGRESS TOWARDS THAILAND'S GOAL FOR SODIUM INTAKE REDUCTION

CVD is responsible for almost one third (29%) of deaths in Thailand, and about one quarter of the population (25%) is affected by high blood pressure. Recognizing this high burden of CVD, in 2016 the National Health Assembly committed to reducing salt/sodium intake by 30% by 2025, in line with the global goal. To provide robust data for monitoring progress towards the national target, dietary sodium intake was estimated (using the gold standard 24-hour urine collection method) in a nationally representative sample of adults between April 2019 and May 2020. Average daily sodium intake was 3635 mg (equivalent to 9.1 g of salt/day). At nearly twice as high as the WHO-recommended level, this result indicates the need to accelerate implementation of Thailand's national salt/sodium reduction strategy *(65)*.

4. Commitment to enforce, monitor and evaluate

It is important to include, from the outset, a plan to monitor changes or enforce compliance with limits or targets. Taking into account the data challenges outlined above, a pre-defined set of indicators (which could relate to the process as well as the targets and outcomes) and a mechanism for monitoring or enforcement are needed. Clear, transparent and independent monitoring of progress is important, and is preferable to self-assessment by companies.

INDEPENDENT MONITORING OF GOVERNMENT-APPROVED VOLUNTARY COMMITMENTS IN FRANCE

As part of the second National Nutrition and Health Programme in France, a system was developed for voluntary food industry commitment charters, including for reducing amounts of fat, sugar or salt, or for increasing the amount of fibre. Charters are required to meet certain criteria, including composition and nutritional criteria, and are reviewed by an external committee of experts to ensure that the proposed changes are significant. Approved charters are monitored by the government's Food Quality Observatory *(66)*.

5. Engagement with food manufacturers with clear rules of engagement

The government must set clear rules of engagement with food manufacturers and, throughout the process, must ensure that decisions are made in the best possible interest of public health. Such engagement will require human resources (including legal capacities), which can be particularly challenging for countries. Any engagement with the food industry should be fully transparent. Canada, for example, has a mechanism to ensure transparency of all communications with stakeholders in relation to healthy eating initiatives, including TFA elimination and salt/sodium reduction. This mechanism includes a registry of all meetings and correspondence with officials, and a commitment that no correspondence is treated as confidential *(68)*.

Mechanisms to hold food companies to account on their commitments are also key. For example, the Norwegian Partnership for a Healthier Diet, which is based on an agreement between the Norwegian health authorities and the food industry, is externally evaluated by an independent research body that publishes its evaluation reports *(68)*. WHO has developed an approach to safeguarding against possible conflicts of interest in nutrition programmes, that has now been piloted in Brazil *(69)*.

ENGAGEMENT WITH FOOD MANUFACTURERS FOR TFA ELIMINATION AND REDUCTION OF SODIUM INTAKE

In May 2019, following dialogue with WHO, member companies of the International Food and Beverage Alliance (IFBA) – which account for about 13% of global packaged food sales – committed to not exceeding 2 g of industrially produced TFA per 100 g of oils and fats in their products worldwide by 2023 *(70)*. Engagement with the international oils and fats industry to support a global supply chain that is free from industrially produced TFA is a WHO priority *(58)*. Dialogue between WHO and IFBA on salt/sodium reduction is also ongoing. Oil manufacturers have also committed to phase out industrially produced TFA in their products by the year 2023.

OVERCOMING INDUSTRY OPPOSITION IN THE REPUBLIC OF KOREA

In the Republic of Korea, opposition from the food industry to a voluntary sodium reformulation programme was overcome by a process to facilitate industry engagement and ownership. Elements included meetings convened with industry, participation of industry representatives in educational forums sponsored by NGOs, support for the Korea Food Industry Association in the development of a guideline for salt/sodium reduction in processed food, provision of research and development support for product reformulation and implementation of a stepwise approach. In addition, financial concerns were allayed by economic analyses showing the net fiscal benefit, whereas continuous publicity and communication efforts helped to build public support. The reformulation programme was part of a comprehensive, multipronged approach to reducing sodium intake, which decreased on average by 23.7% between 2010 and 2014 – changes that were associated with reductions in population blood pressure and prevalence of hypertension *(71)*.

6. Choice between a mandatory or a voluntary approach

Approaches involving mandatory and voluntary targets have both been shown to work in different country contexts. WHO encourages countries to implement a mandatory policy measure that is in line with WHO best-practice policies to eliminate industrially produced TFA, because a mandatory approach (using legislation or regulation to define maximum limits) is often more effective, especially for industrially produced TFA.

Modelling exercises suggest that mandatory approaches would be more cost-effective *(31, 72)*. In addition, mandatory approaches create a level-playing field for food companies. However, mandatory programmes without enforcement are not effective in achieving targets.

Some countries have managed to achieve successful reformulation through a voluntary approach; for example, Finland *(44)*. Also, the United Kingdom was able to reduce the content of TFA in the food supply using a voluntary approach. However, if voluntary measures are to be successful, there is a need for strong government leadership, regulatory threats imposed by the government, and robust monitoring and publication of results.

MANDATORY SODIUM REDUCTION TARGETS IN SOUTH AFRICA

South Africa opted for a statutory approach, introducing mandatory maximum limits for sodium content for products in 13 food categories in 2013, including, bread, breakfast cereals, margarines, meat products, snack foods and soup mixes *(60)*. Food companies were given until June 2016 to meet the first set of targets, and until June 2019 to meet the second (less stringent) targets.

During the year leading up to the implementation date, a baseline evaluation was carried out using a database of nutrition label data gathered by in-store surveys and crowdsourcing of food labels, to assess the sodium levels of packaged foods and highlight the reductions needed to meet the targets *(73)*. A modelling study, used to inform development of the legislation, estimated that a reduction in average daily sodium intake of 0.85 g could avert 7400 CVD deaths (6400 CVD deaths by reducing the sodium levels of bread alone) and 4300 nonfatal strokes every year, saving the South African health system US$ 40 million annually *(74)*.

VOLUNTARY TFA REDUCTION IN THE UNITED KINGDOM AND THE NETHERLANDS

In the United Kingdom, most supermarkets, many manufacturers and the bigger fast food chains agreed in 2012 to sign up to the voluntary Public Health Responsibility Deal agreement to remove and not use industrially produced TFA *(75)*. Through the combined efforts of the food industry, industrially produced TFA have largely been removed from food products without the need for a legal ban on industrially produced TFA.

Similarly, the Netherlands has achieved substantial reductions in industrially produced TFA in the food supply since 2003 via the Dutch Task Force for the Improvement of the Fatty Acid Composition (TFIFAC). TFIFAC members include major buyers and suppliers of vegetable oils and fats in a range of product categories. The initiative prompted manufacturers to reformulate and lower the industrially produced TFA content of products *(76)*.

7. Other policy levers can drive food reformulation

Several policy levers available to government have been shown to drive food and beverage product reformulation. These include healthy diet policy actions that are based on nutrient profile models, which establish specific cut offs for the nutrients of concern (e.g. fiscal measures, nutrition labelling, marketing restrictions, and public food procurement and service policies). Taxes on sugar-sweetened beverages, for example, that are tiered based on sugar content, or taxes on foods exceeding a certain level of unhealthy fats, sugars or salt/sodium content may induce the food industry to reformulate their products, to escape the tax. Similarly, implementation of mandatory nutrient declaration and introduction of mandatory interpretive front-of-pack nutrition labels (e.g. traffic light labelling, warning labels or summary scores) can incentivize food companies to reformulate their products.

Acknowledgements

This policy brief was prepared by (in alphabetical order): Dr Francesco Branca, Dr Luz Maria De-Regil, Dr Katrin Engelhardt, Ms Kaia Engesveen, Ms Ana Fernandez-Gaxiola, Ms Allison Goldstein, Ms Joyce Haddad, Dr Mary-Anne Land, Ms Lina Mahy, Ms Karen McColl, Dr Chizuru Nishida, Ms Adriana Quintero, Ms Abhilasha Vaid, Ms Camilla H. Warren and Dr Rain Yamamoto, Department of Nutrition and Food Safety, World Health Organization (WHO). We also acknowledge Ms Kristiana Bruneau for coordinating the design and production of this policy brief.

Valuable inputs and critical review were provided by the following experts who contribute to the Science & Technology in Childhood Obesity Policy (STOP) project[3]: Dr Anu Aaspõllu, Prof Tiina Laatikainen, Ms Päivi Mäki, Dr María M. Morales Suárez-Varela, Dr Susanna Raulio, Prof Franco Sassi, Dr Marco Silano and Dr Alison Tedstone. The STOP project (http://www.stopchildobesity.eu/) received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No. 774548. The STOP Consortium is coordinated by Imperial College London and includes 24 organisations across Europe, the United States and New Zealand. The content of this publication reflects only the views of the authors, and the European Commission is not liable for any use that may be made of the information it contains.

WHO gratefully acknowledges the financial support provided by the Government of Sweden and Resolve to Save Lives for the production of this brief.

[3] See http://www.stopchildobesity.eu/.

General resources

1. SHAKE the salt habit. The SHAKE technical package for salt reduction. Geneva: World Health Organization; 2016 (https://apps.who.int/iris/handle/10665/250135).
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Useful resources on healthy diets and profile models

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World Health Organization

Reducing salt intake to
less than 5 grams per day
(about 1 teaspoon)

means less death,
disability and suffering
from heart disease
and stroke

#LessSalt

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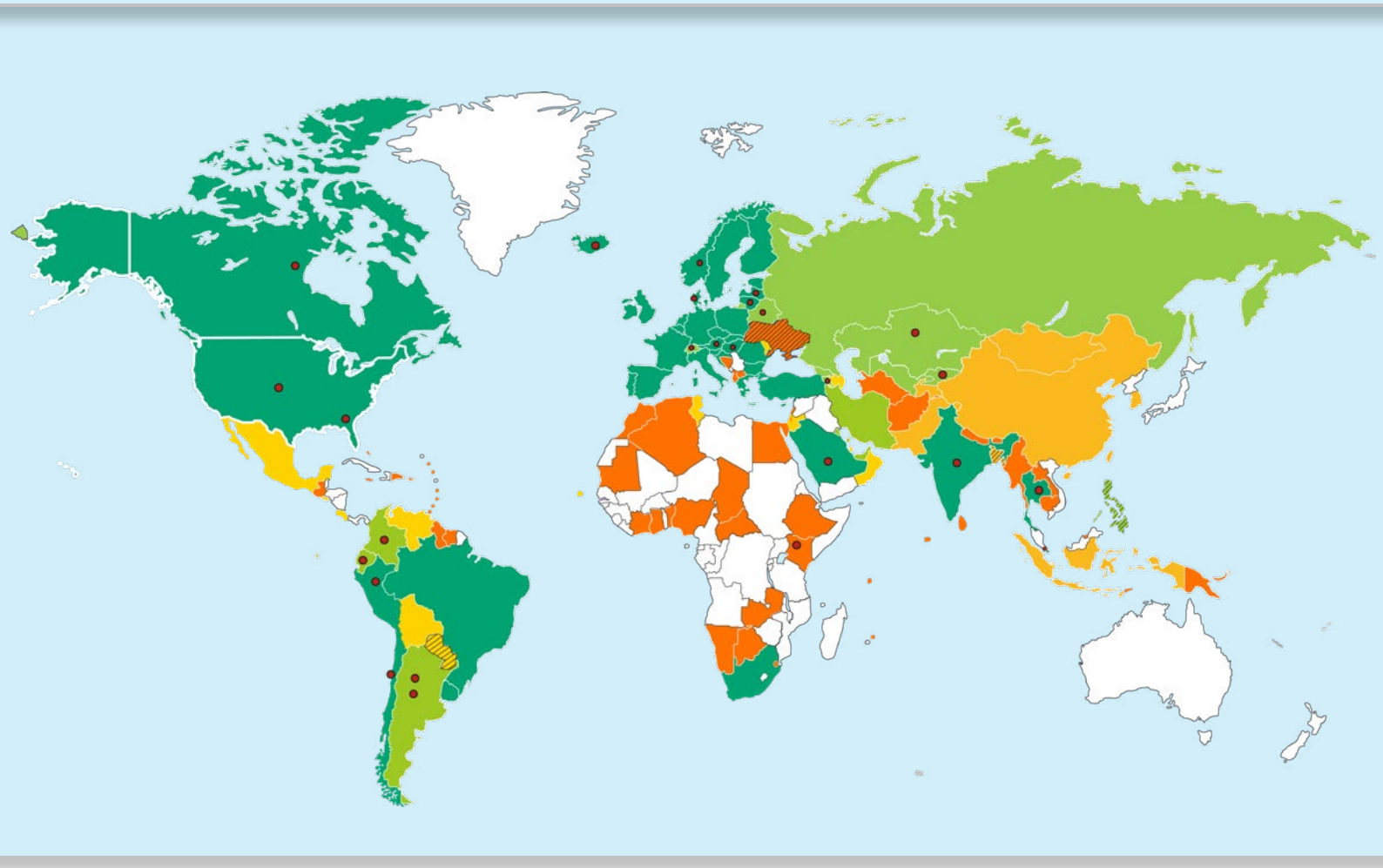
Elimination of industrially produced trans-fatty acids (TFA) is a target that is within reach and can have large-scale impact in preventing heart disease



1. **National policy commitment to eliminate TFA:** National policies, strategies or action plans that express a commitment to reduce industrially produced TFA in the food supply
2. **Other complementary measures:** Legislative or other measures that encourage consumers to make healthier choices about industrially produced TFA or mandatory limits on industrially produced TFA in foods in specific settings
3. **Less restrictive TFA limits:** Legislative or regulatory measures that limit industrially produced TFA in foods in all settings, but are less restrictive than the recommended approach
4. **Best-practice TFA policy:** Legislative or regulatory measures that limit industrially produced TFA in foods in all settings, and are in line with the recommended approach

Best-practice TFA policy passed but not yet in effect

Monitoring mechanism for mandatory TFA limits

Missing data Missing data

The map is based on the data available in GINA (as of May 2022).
https://extranet.who.int/nutrition/gina/en/scorecard/TFA

Reformulation of food and beverage products for healthier diets: policy brief

ISBN 978-92-4-003991-9 (electronic version)
ISBN 978-92-4-003992-6 (print version)

Layout: Alberto March

UNITED NATIONS DECADE OF
ACTION ON NUTRITION
2016-2025

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