WHO GLOBAL REPORT
ON SODIUM INTAKE REDUCTION

World Health Organization

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ABBREVIATIONS

HIC high-income countries

LIC low-income countries

LMC lower-middle income countries

ND not determined

UMC upper-middle-income countries

FOREWORD

Sodium reduction plays a key role in protecting populations from the burden of noncommunicable diseases, namely, cardiovascular disease which is the number one cause of death and disability globally. The evidence is clear: the more sodium we consume the more our blood pressure rises, and blood pressure is reduced when dietary sodium intake is reduced. Reducing sodium intake is one of the most cost-effective ways to improve health, as it can avert millions of deaths every year at very low total programme costs.

On average, we consume over 4 mg sodium every day, which is double the amount recommended by WHO. In 2013 all 194 WHO Member States committed to reducing population sodium intake by 30% by the year 2025. Since then, progress has been slow and only a few countries have been able to reduce population sodium intake, but no one has been able to achieve the target. As such, it is being considered to extend the target to 2030.

We can reduce sodium intake by deciding to add less salt to the food we prepare and by deciding to buy foods that contain less sodium. People's behaviour change is important, and mass media campaigns to alter consumer behaviour around sodium are needed. However, several public policies need to make this choice an easier one. Food manufacturers need to reduce sodium content in food products; products with high sodium content need to be easy to identify through front-of-pack labelling; meals offered in public institutions such as schools, hospitals, and public offices should contain less sodium. If the WHO recommended policies were implemented, we would see sodium consumption reduced by over 20%, getting close to the target set in 2013.

The report shows which countries have adopted and implemented sodium reduction policies and is meant to encourage bolder action from a larger number of countries.

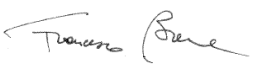
WHO will support these efforts with new and better tools, innovative approaches, advocacy initiatives and technical assistance. We can build on the success stories of the few countries who have managed to achieve a decrease of population intake of sodium.

In many high-income countries, and increasingly in low- and middle-income countries, a significant proportion of sodium intake can be attributed to processed food. In 2022 WHO developed benchmarks for sodium content in 18 food categories and called on food operators to implement them globally. The benchmarks are based on real life experiences, so that their implementation is safe and technologically feasible. Some of the large food manufacturers have committed to make steps to achieve those benchmarks, but again bolder action and engagement from more actors is needed to see measurable public health impact.

WHO has long been monitoring and reporting on the adoption, implementation, and impact of policies to reduce sodium. We will continue to do so and will establish a mechanism to monitor the implementation of the commitments of food operators.

Implementing WHO recommended sodium intake reduction policies may save over two million deaths by 2025 and seven million by 2030. We cannot fail this completely achievable and affordable public health goal!

Dr Francesco Branca, MD, PhD
Director, Department of Nutrition for Health and Development (NHD)



EXECUTIVE SUMMARY

The global burden of unhealthy diets constitutes a major public health and development challenge worldwide. Urgent action is required to modify the production and consumption of foods and beverages, including industry manufactured (pre-packaged) food. Of greatest concern is excess consumption of sodium, sugars and unhealthy fats, particularly *trans*-fatty acids (trans fats) and saturated fatty acids, and low consumption of whole grains, pulses, vegetables, and fruits.

The largest number of diet-related deaths, an estimated 1.89 million each year, is associated with excessive intake of sodium, a well-established cause of raised blood pressure and increased risk of cardiovascular disease. The global average sodium intake is estimated to be 4310 mg/day (10.78 g of salt per day), which far exceeds the physiological requirement and is more than double the World Health Organization (WHO) recommendation of <2000 mg of sodium (equivalent to <5 g of salt) per day in adults.

Reducing sodium intake is one of the most cost-effective ways to improve health and reduce the burden of noncommunicable diseases, as it can avert a large number of cardiovascular events and deaths at very low total programme costs. WHO recommends several sodium-related best buys policies as practical actions that should be undertaken immediately, to prevent cardiovascular disease and its associated costs. These include lowering sodium content in food products; implementing front-of-pack labelling to help consumers select food products with lower sodium content; conducting mass media campaigns to alter consumer behaviour around sodium; and implementing public food procurement and service policies to reduce sodium content in food served or sold.

All 194 Member States committed to reducing population sodium intake by 30% , demonstrating strong consensus on sodium reduction as a life-saving strategy

All 194 Member States committed to reducing population sodium intake by 30% by 2025, demonstrating strong consensus on sodium reduction as a life-saving strategy. For the first time, WHO has documented progress to date on policies (through the Sodium Country Score Card) and their impact on intake and cardiovascular diseases. Furthermore, WHO proposes that if all countries accelerate policy adoption to ensure at least two mandatory interventions and implementation of best practices, it is possible to dramatically reduce intake by 2030.

As of October 2022, 5% of Member States ($n = 9$) have implemented at least two mandatory sodium reduction policies and other measures, and all WHO sodium-related best buys for tackling noncommunicable diseases. A further 22% of Member States ($n = 43$) have implemented at least one mandatory policy or measure. At the same time, 33% of the remaining Member States ($n = 64$) have implemented at least one voluntary policy and other measures to reduce sodium intake, while 29% ($n = 56$) have made a policy commitment towards sodium reduction.

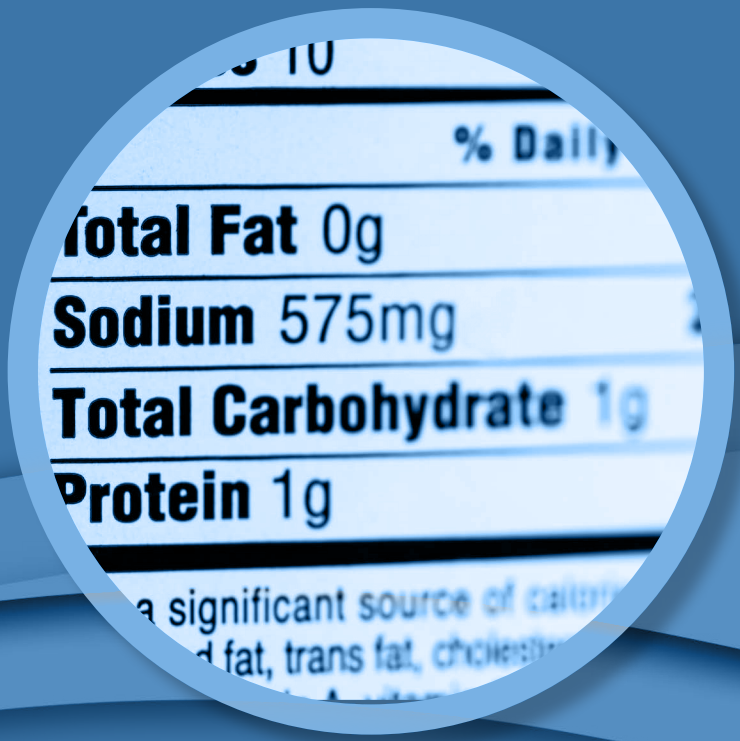
Modelling indicates the estimated potential impact of policy implementation on sodium intake to be a 23% reduction, and on cardiovascular death a 3% reduction, globally, by 2030. Although the modelled global sodium reduction is below the 30% target by 2030, achieving the target can still be considered attainable with the rapid implementation of government-led and comprehensive mandatory sodium reduction policies and other measures.

WHO is committed to supporting Members States to implement, monitor and enforce policies and other measures to ensure that every adult and child enjoys healthy food environments to realise their human right to safe, secure and nutritious food, and the highest attainable standard of health.

SCOPE AND PURPOSE

The World Health Organization (WHO) has developed this report to monitor progress and identify areas for action in the implementation of sodium reduction policies and other measures within Member States and across WHO regions and World Bank income groups. For the first time, a Sodium Country Score from 1 (the lowest level) to 4 (the highest level) is allocated to each Member State based on the level of implementation of sodium reduction policies and other measures. The Sodium Country Score is used to estimate the impact of policy progress on population dietary sodium intake and cardiovascular disease.

BACKGROUND



BACKGROUND

An estimated 1.89 million deaths each year are associated with excessive sodium intake *(1)*, a well-established cause of raised blood pressure and increased risk of cardiovascular disease *(2-4)*. Reducing sodium intake is one of the most cost-effective ways to improve health and reduce the burden of noncommunicable diseases, as it can avert a large number of cardiovascular events and deaths at very low total programme costs. WHO recommends several sodium-related best buys policies and other measures as practical actions that should be undertaken immediately, to prevent cardiovascular disease and its associated costs *(5)*. These include lowering of sodium content in food products; implementing front-of-pack labelling to help consumers select food products with lower sodium content; conducting mass media campaigns to alter consumer behaviour around sodium; and implementing public food procurement and service policies to reduce sodium content in food served and sold. National nutrition and/or noncommunicable disease prevention and control policies help to catalyse and integrate regulatory, legislative and multisectoral actions across health and other health relevant sectors. The development, implementation and monitoring and evaluation of sodium reduction policies should be government-led and safeguarded against possible conflicts of interest.

WHO guideline: Sodium intake for adults and children

Sodium is an essential nutrient involved in the maintenance of normal cellular homeostasis, and in the regulation of fluid and electrolyte balance. It is crucial for maintaining extracellular fluid volume because of its osmotic action; and it is equally important for muscle and nerve cell function, and for the transport of nutrients through plasma membranes *(6)*. Sodium deficiency is extremely unlikely in healthy individuals *(7)*; the minimum intake level required for physiological needs is not well established although it is estimated to be <500 mg/day sodium *(8)*. Hence, most populations are consuming much more sodium than is physiologically necessary.

Accordingly, the WHO guideline recommends:

- a reduction in sodium intake to reduce blood pressure and risk of cardiovascular disease, stroke and coronary heart disease in adults. WHO recommends a maximum intake of <2000 mg/day sodium (<5 g/day salt) in adults;
- a reduction in sodium intake to control[1] blood pressure in children. The recommended maximum intake of <2000 mg/day sodium (<5g/day salt) in adults should be adjusted downward based on the energy requirements of children relative to those of adults.

[1] "Control" for this recommendation refers to the prevention of a deleterious rise in blood pressure with age.

While the primary health effect associated with a diet high in sodium is raised blood pressure, there is a growing body of evidence documenting the impact of high sodium intake on a range of other health outcomes, including gastric cancer *(9, 10)*, obesity *(11-13)*, Ménière's disease *(14)* and osteoporosis *(15)*.

Although many noncommunicable diseases (including cardiovascular diseases) are associated with older age groups, robust evidence indicates that these diseases can develop early in life, and that all age groups that are affected *(16)*.

Member State commitments to the prevention and control of noncommunicable diseases

2011

Member States committed to reducing exposure to unhealthy diets. The commitment was made through a Political Declaration of the High-level Meeting of the United Nations General Assembly on the Prevention and Control of Noncommunicable Diseases *(17)*.

2013

Member States adopted the Global Action Plan for the Prevention and Control of Noncommunicable Diseases 2013–2020 *(18)* to take coordinated action at all levels to attain nine voluntary global targets, including:

- 30% relative reduction in mean population sodium intake by 2025, with a goal of <2000 mg/day sodium,
- 25% relative reduction in the prevalence of raised blood pressure.

2015

Member States committed to the *Sustainable Development Goals*, including Goal 3, Good Health and Well-being of which target 3.4 stipulates by 2030:

- reduce by one third premature mortality from noncommunicable diseases through prevention and treatment and promote mental health and well-being.

2017

Member States endorsed the updated WHO best buys *(5)* - a set of affordable, feasible, impact-driven and highly cost-effective measures to reduce sodium intake.

2022

Member States adopted the Implementation Roadmap 2023–2030 for the Global Action Plan for the Prevention and Control of Noncommunicable Diseases, which will support countries to accelerate and implement actions to improve noncommunicable disease outcomes, including sodium reduction *(19)*.

METHODS

METHODS

This report uses several data sources and models to determine population dietary sodium intake, country-based policy implementation and corresponding score, and the policy impact on sodium intake and cardiovascular disease.

Implementation of sodium reduction policies and measures

Data on policy implementation were obtained from the WHO Global database on the Implementation of Nutrition Action (GINA) *(20)*. This database includes WHO policy surveys focusing on nutrition *(21)*, noncommunicable diseases *(22)* and related databases *(23)*, a number of WHO reports at the global *(24)* or regional level *(25-35)*, as well as the results of ongoing monitoring by the WHO team through its regional and country networks and systematic searches on government websites. These data cover all Member States, thus, in the report, the denominator for overall policy implementation is $n = 194$. Additional information on Member State policy status was sourced from relevant partner databases *(36-38)* and reports *(39)*, and from recent peer-reviewed papers *(40-45)*.

For each relevant national policy or action identified, the national document was obtained through searches of government websites or legislative compilations, and analysed for potential inclusion in GINA–that is, whether it contained specific goals, strategies, or measures to reduce sodium intake. Relevant documents were added to GINA with basic reference information about the title, government agency publishing the document, date of publishing, date of going into effect, adoption status, and the document and/or the link to the document on the government website. In addition, an extract of key sections was included in the document's original language and the document was catalogued in GINA using taxonomy topics for different healthy diet policies and sodium reduction measures. Where there were doubts around relevance or status, a team discussion occurred. As needed, additional information was sought to find evidence of adoption or implementation (for example, from consulting media articles), that reformulation targets were launched (for example, from government reports or meeting minutes), to check whether school food standards were initiated (for example, from school policies and government reports) and to verify that a front-of-pack labelling system is in use (for example, from online food shops in the country).

This data scoping and analysis was completed for all Member States indiscriminately. Additional searches on government websites were performed for countries with no information regarding sodium reduction policies.

These data set out the overarching status of implemented sodium reduction policies and other measures.

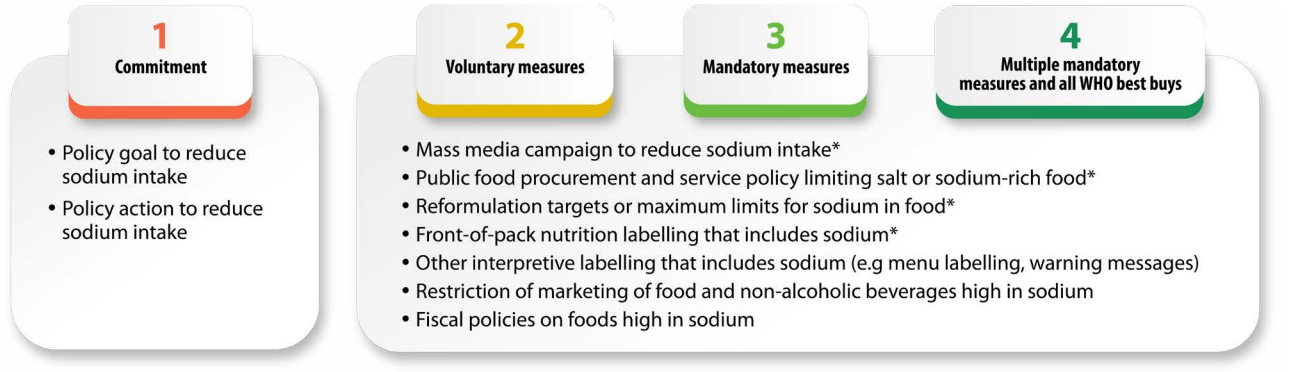
Sodium Country Score Card

The policy information described above was used to develop a Sodium Country Score Card. It assesses country implementation of sodium reduction policies and other measures (both voluntary and mandatory), allocating a score from 1 (the lowest level of implementation) to 4 (the highest level of implementation).

The Sodium Country Score Card assesses policies and other measures, and assigns the highest score obtained as follows:

- **Score 1** - a national policy commitment towards sodium reduction
- **Score 2** - voluntary measures implemented to reduce sodium in the food supply or encourage consumers to make healthier food choices These measures would be considered if upper-level thresholds for sodium have been set in an underlying nutrient profile model (for example, a quantified limit for the maximum permissible amount of sodium in food served in schools), or if consumer behaviour is specifically targeted in relation to sodium (for example, prohibition on saltshakers in food service areas).
- **Score 3** - mandatory measures implemented to reduce sodium and use a nutrient profile model to effectively implement measures. Declaration of sodium on all pre-packaged food is mandatory.
- **Score 4** - at least two mandatory measures to reduce sodium, mandatory sodium declaration on all pre-packaged food, and at the same time all four WHO sodium-related best buys (Figure 1).

Figure 1. Sodium Country Score Card Criteria



* WHO best buys for reducing noncommunicable diseases through reducing sodium intake

It should be noted that the Sodium Country Score Card algorithm does not differentiate between key aspects of the policies and other measures, such as the number of food categories with a sodium content limit. For example, one country may have implemented voluntary reformulation targets for sodium content in processed food for a large number of food categories and is assessed as score 2, while another country implements mandatory sodium content limit on one food category only and yet this country is potentially assessed as score 3 or 4. Similarly, the scoring algorithm does not take into account the type of front-of-pack labelling system, the number of channels or age range of children covered by the marketing restrictions, or the types of settings or food categories covered by the public food procurement and service policies. Finally, the data also include country reports on mass media campaigns, but information on the frequency, duration and reach of the mass media campaigns is not frequently known or evaluated.

The assessment of measures in the Sodium Country Score Card is based on the pathway countries may take from making a policy commitment to address a problem at (the first level), up to having at least two mandatory policies and other measures plus implementation of all best buys (the highest level), as comprehensive government-led mandatory policies and other measures are generally considered more effective *(46)* and have a history of being ineffective unless they are coupled with strong government oversight and close monitoring *(47)*. While there are several examples of effective city-level action *(48, 49)* to reduce sodium intake, the Sodium Country Score Card mainly focuses on national programmes and therefore does not comprehensively consider stand-alone city initiatives.

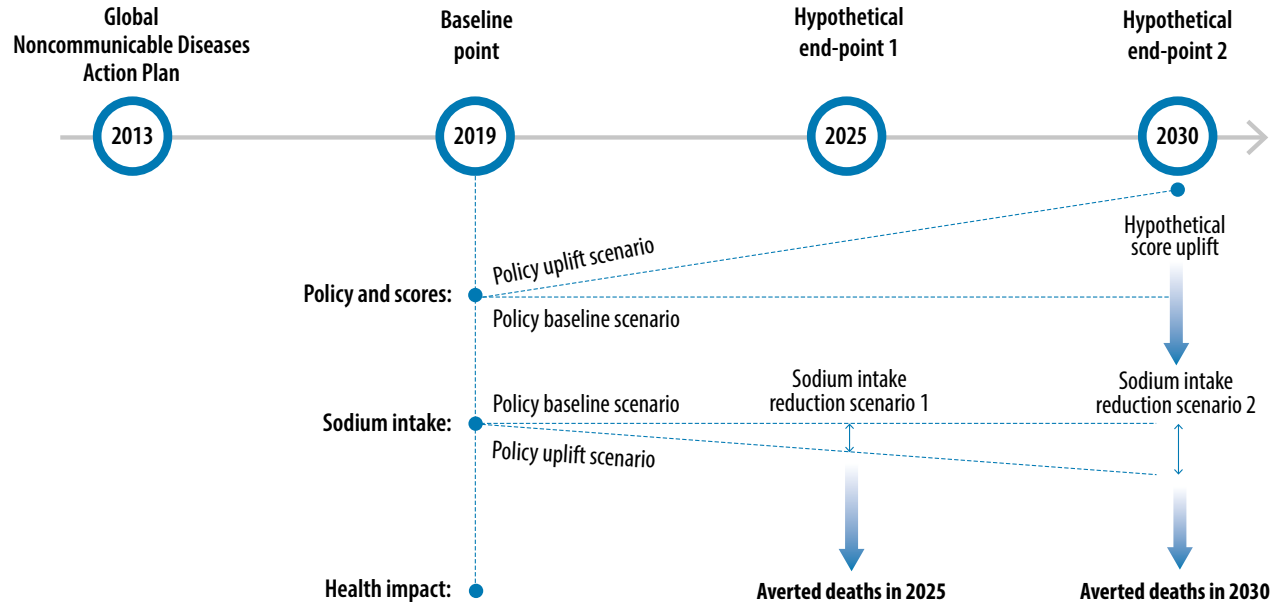
Population dietary sodium intake

Estimates for mean population sodium intake were calculated by the Institute for Health Metrics and Evaluation *(1)*. The data can be readily accessed through the WHO Noncommunicable Disease Data Portal, which provides access to detailed information on noncommunicable diseases and their risk factors *(50)*. It should be noted that the Institute for Health Metrics and Evaluation data is not without limitations, given there is no comprehensive reporting of population sodium intake.

Modelled health impact of sodium reduction policies and measures

A model was created to estimate the impact of uplifting the score of countries in the Sodium Country Score Card as a result of implementing new mandatory or voluntary policies and other measures, on mean population sodium intake, and in turn on cardiovascular disease outcomes. The baseline scenario was set to 2019, the year of the most recently available sodium intake estimates, and the hypothetical scenario estimated for the two end-points of 2025 and 2030 (corresponding to the sodium reduction target of 30% by 2025, now extended to 2030) (Figure 2).

Figure 2. Framework for estimated changes in sodium intake and cardiovascular disease based on policy implementation



In the baseline scenario, it was assumed that no Member State implemented any new policy or other measure and thus had no score uplift. The rate of change in sodium intake was calculated using the current average annual rate of reduction in individual Member States, based on the available data as of 2019, and projecting intake until 2025 or 2030.

In the hypothetical scenario, each Member State was uplifted two scores or, if already at score 3 or 4 in the baseline year, achieved or sustained the highest score 4. The effect of score uplifts or sustaining a score 4 on sodium intake was calculated using effect sizes for mandatory and voluntary policies used in a previous modelling. The effect sizes for mandatory and voluntary measures – an inherent feature of the Sodium Country Score Card – were considered to be in line with ongoing work by WHO to update the best buys *(51)*, systematic reviews *(52)* modelling studies *(53, 54)*, and documented country impact of multicomponent interventions *(55, 56)*.

The following effect sizes were used to estimate the impact of policy progress on sodium intake over an 11-year period from 2019 to 2030, where recording the estimated effect on intakes in 2025 from the 2030 projection was used as the estimated effect for that end-point.

- Uplift from no score to score 2 = 15% (based on voluntary reformulation)
- Uplift from score 1 to score 3 = 20% (based on mandatory reformulation)
- Uplift from score 2 or 3 to score 4 = 25% (a composite value based on reformulation, procurement, and front-of-pack labelling).

The corresponding health impact of reduced sodium intake on the number of deaths from cardiovascular diseases resulting from the effect of the hypothetical uplifts in score compared with the baseline projected intake was calculated for each Member State using the Noncommunicable diseases Preventive Risk Integrated ModEl (NCD prime) *(57)*, based on the population attributable framework *(58)*. The default parameters of NCD prime were updated to a reduction in 100 mmol/day in 24-hour urinary sodium excretion of an associated reduction in systolic blood pressure of 5.56 mmHg as reported by Filippini et al 2021 *(2)* and in line with the updating of Appendix 3 of the WHO Global Action Plan for the Prevention and Control of Noncommunicable Diseases 2013–2030 analysis *(51)*.

It should be noted that the estimated effect size was applied to each Member State, despite known differences in the major sources of sodium in each population, therefore, it is likely that Member States with a higher discretionary sodium intake (salt added to food during cooking and/or at the table) may have a lower estimated reduction in dietary intake, and fewer cardiovascular deaths averted in 2025 and 2030. The estimated effect sizes were also applied to Member States, regardless of existing policies and measures.

RESULTS

RESULTS

Data on population dietary sodium intake, and country-based sodium reduction policies and other measures implemented are presented for all 194 WHO Member States. Also presented are the scores assessed through the Sodium Country Score Card (Annex 1), and the policies on sodium intake and cardiovascular disease.

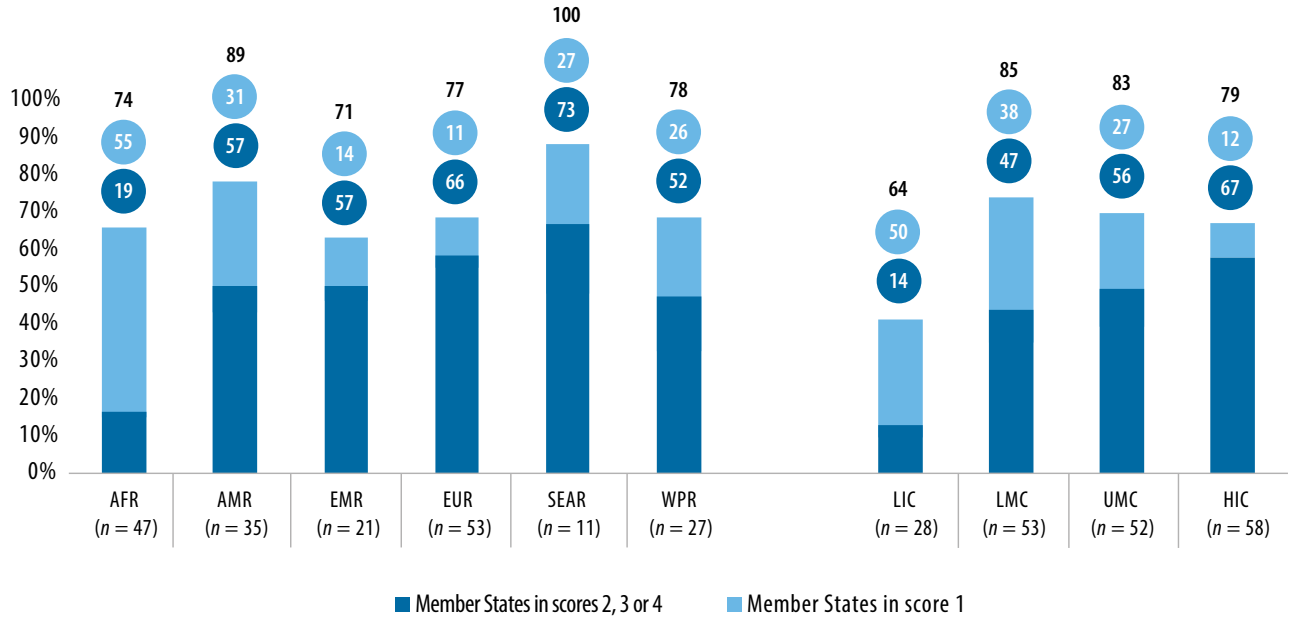
Implementation of sodium reduction policies and measures

National policy commitment

National nutrition and/or noncommunicable disease prevention and control policies help to catalyse and integrate legislative and multisectoral measures across food, health and other health-relevant sectors. The development, implementation, and monitoring and evaluation of sodium reduction policies should be government-led and safeguarded against possible conflicts of interest *(59)*.

Of the 194 Member States, 79% (*n* = 154) have a policy commitment towards sodium reduction (Figure 3). There is little variation across WHO regions, however, low-income countries less frequently have stated sodium reduction commitments. Of the Member States, 56 remain in score 1 in the Sodium Country Score Card, without further measures implemented in the WHO African Region and among low-income countries, whereas 98 implement either voluntary, or mandatory policies and other measures, and are scored higher. Just under half of these Member States had already made a sodium reduction policy commitment by 2013, the year of the WHO Global Action Plan for the Prevention and Control of Noncommunicable Diseases and the global sodium reduction target. Box 1 describes setting of national policy targets and actions in Nigeria.

Figure 3. Proportion of Member States with a policy commitment to reduce sodium intake by WHO region, and World Bank income group



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

Box 1. National policy commitment — Nigeria

In 2013, the National Policy and Strategic Plan of Action on Prevention and Control of Non-Communicable Diseases was established, with the objective to reduce sodium intake *(60)*. In 2019, the National Multi-sectoral Action Plan for the Prevention and Control of Non-Communicable Diseases (2019-2025) was launched *(61)*. This plan clearly identifies unhealthy diet as a risk factor for noncommunicable diseases, and notes that, anecdotally, food consumption patterns in Nigeria are changing rapidly towards the consumption of processed foods high in sodium. The target set for sodium reduction is at least a 30% relative reduction in mean population intake of sodium. The proposed actions to achieve this target include reformulation of processed food products to contain less salt, setting maximum target levels for sodium content in processed foods and standards for front-of-pack labelling. These actions will be supported by the implementation of nutrition education and counselling, mass media and behaviour change campaigns on healthy diets, including social marketing to reduce sodium and promote the intake of fruits and vegetables.

The commitments towards sodium reduction set targets for reduced population sodium intake and/or describe the approach government will take to achieve this target. These commitments are typically expressed in national nutrition plans (n = 82), noncommunicable disease plans (n = 94) or health sector plans (n = 40). Three Member States have incorporated sodium reduction commitments into multisectoral development plans (Indonesia, Islamic Republic of Iran and Türkiye), and one Member State has incorporated sodium reduction commitments into a food sector plan (Mongolia). About a third of the Member States (37%) had sodium reduction commitments expressed in more than one policy type (Annex 2, Table A2.1).

Measures to reduce sodium in the food supply or encourage consumers to make healthier food choices about sodium

WHO has identified a set of evidence-based best buy interventions to tackle noncommunicable diseases that should be undertaken immediately, with expected accelerated results in terms of lives saved, healthy life-years gained, cases of disease prevented, and costs avoided.

These aim to reduce sodium intake through:

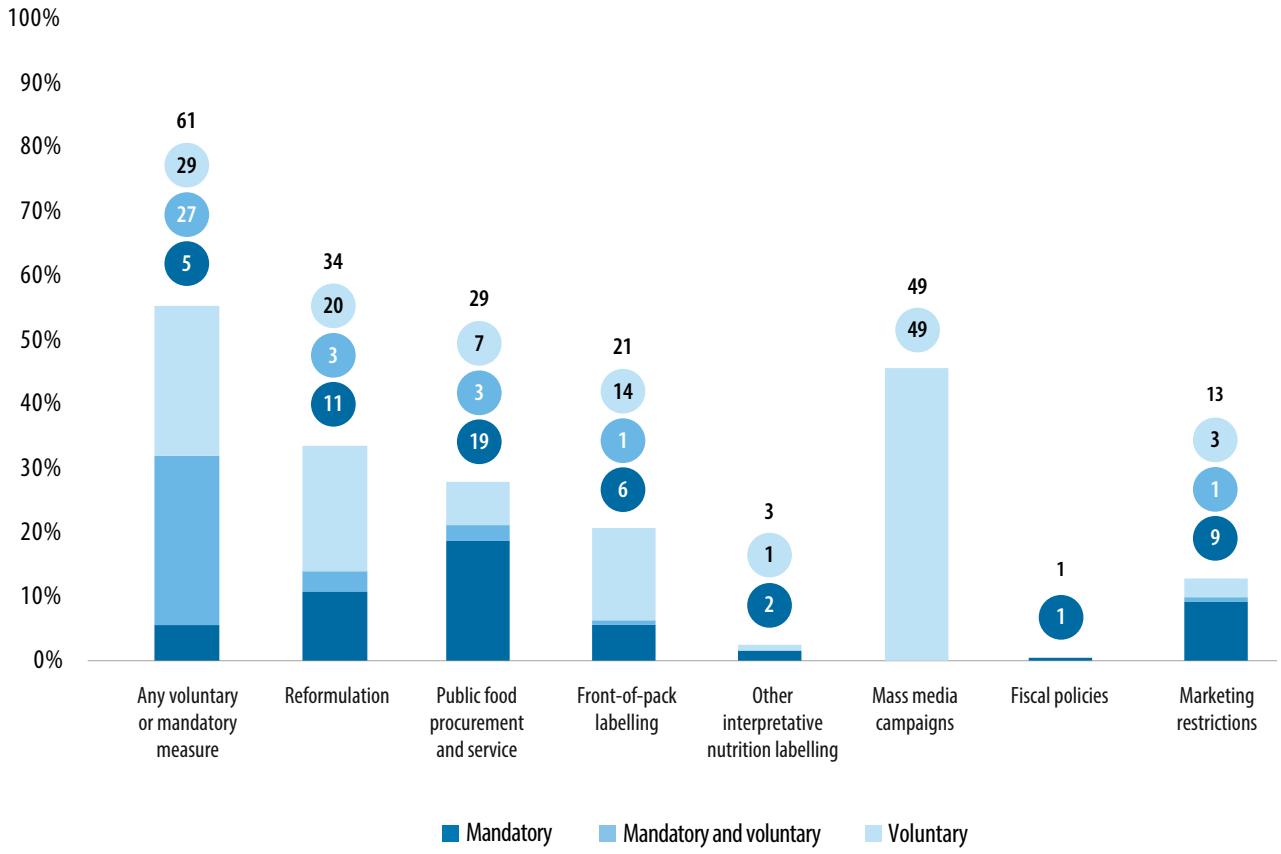
- reducing sodium content in a food supply (reformulation of processed/manufactured food);
- reducing sodium in meals or snacks consumed outside of the home (public food procurement and service policies);
- encouraging consumers to make healthier choices related to sodium through information (media campaigns, front-of-pack or other interpretive nutrition labelling, menu labelling or removal of saltshakers in food service areas) and absence of negative influence (restricting marketing of food high in sodium).

These policies and other measures are mutually reinforcing. As the number of policies and other measures implemented increases, there is a compound increase in immediate benefits. However, a single policy or measure can be implemented based on the resources available, and built upon with additional complementary policies and measures over time; they may also have an unintended effect. For instance, setting specific thresholds for, the maximum permissible amount of sodium in a food product in order to bear or not bear a label, may encourage reformulation of the product to reduce its sodium content.

Generally, mandatory policies, whether expressed in legislation or other government guidance, are more likely to achieve impact because they have higher coverage and set a level playing field across the food manufacturing sector where all companies abide by the same limits and rules. Mandatory policies create a food environment that restricts or demotes the least healthy food options regardless of where food is served or sold.

Of the 194 Member States, 55% (*n* = 119) have implemented sodium reduction policies and other measures through mandatory (5%; *n* = 9), mandatory and voluntary (27%; *n* = 53) or voluntary (29%; *n* = 57) approaches (Figure 4). The most implemented sodium reduction measure is voluntary media campaigns (49%; n = 96), followed by reformulation (34%; *n* = 65) and public food procurement and service policies that are both mandatory and voluntary (Figure 4). There are significant regional discrepancies in implementation of measures and use of voluntary versus mandatory policies (Annex 3), and a consistent tendency for these measures to be more frequently implemented the higher the income group (Annex 4).

Figure 4. Proportion of Member States implementing mandatory and/or voluntary sodium reduction policies and other measures



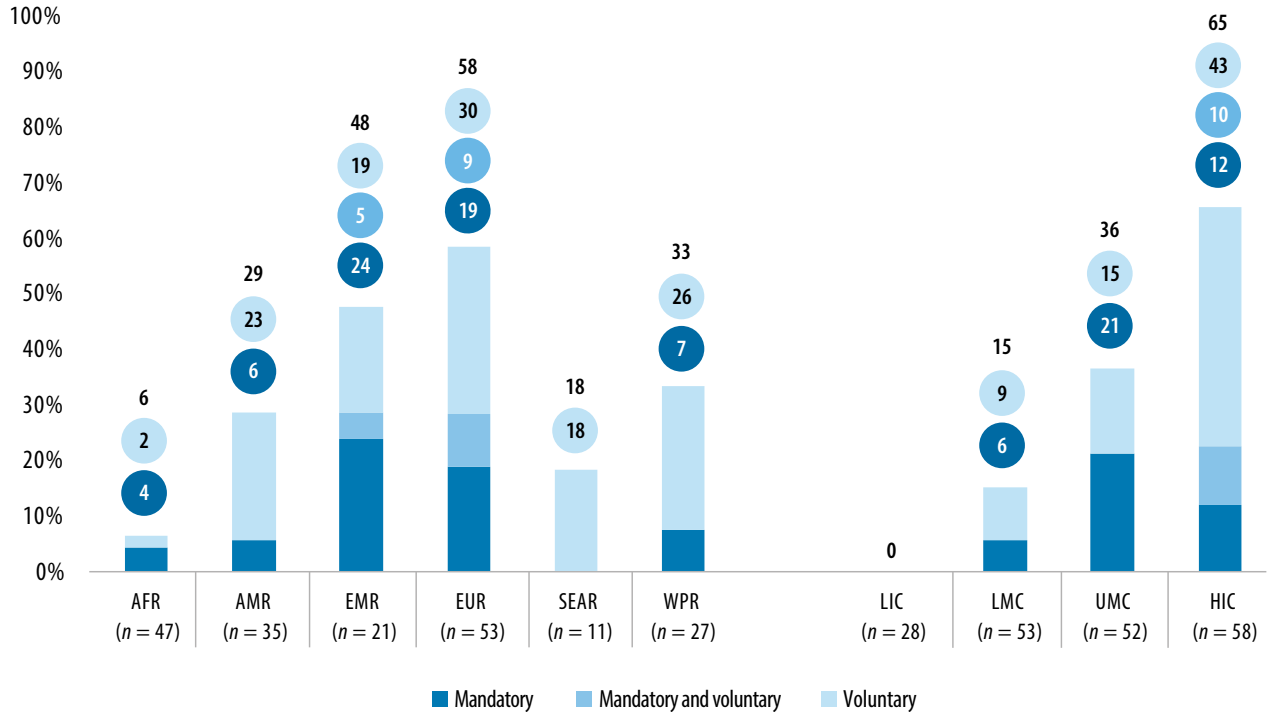
Reformulation to reduce sodium content across the food supply

An effective way to reduce population sodium intake is through lowering the sodium content of foods that are consumed frequently *(24, 62)*. In many high-income countries, and increasingly in low- and middle-income countries, a significant proportion of sodium in the diet comes from processed foods such as bread, cereal and grains, processed meats, and dairy products *(63)*.

Mandatory maximum limits for sodium in processed foods promote industry-wide reformulation. It creates a marketplace that restricts the least healthy food options regardless of where people shop or how much they understand (or have access to) information on labels. This type of policy requires no consumer action and places the burden to avoid manufacturing less healthy products on the food industry.

Of the 194 Member States, 34% (n = 65) have implemented policies to reformulate manufactured food to contain less sodium through mandatory (11%; n = 21), mandatory and voluntary (3%; n = 6), or voluntary (20%; n = 38) approaches (Figure 5 and Annex 2, Table A2.2). Reformulation is most commonly implemented in the WHO Eastern Mediterranean and European regions, and is more common in the higher the income group. The first reformulation policies date back to the 1980s when some Member States introduced maximum permissible limits of sodium in bread, tomato sauces or peanut butter. About half of the Member States with mandatory or voluntary sodium reduction reformulation policies had introduced these by 2013, when the WHO Global Action Plan for the Prevention and Control of Noncommunicable Diseases, which recommended reducing sodium in the food supply, was launched.

Figure 5. Proportion of Member States implementing mandatory and/or voluntary reformulation policies to reduce sodium content in food by WHO region, and World Bank income group

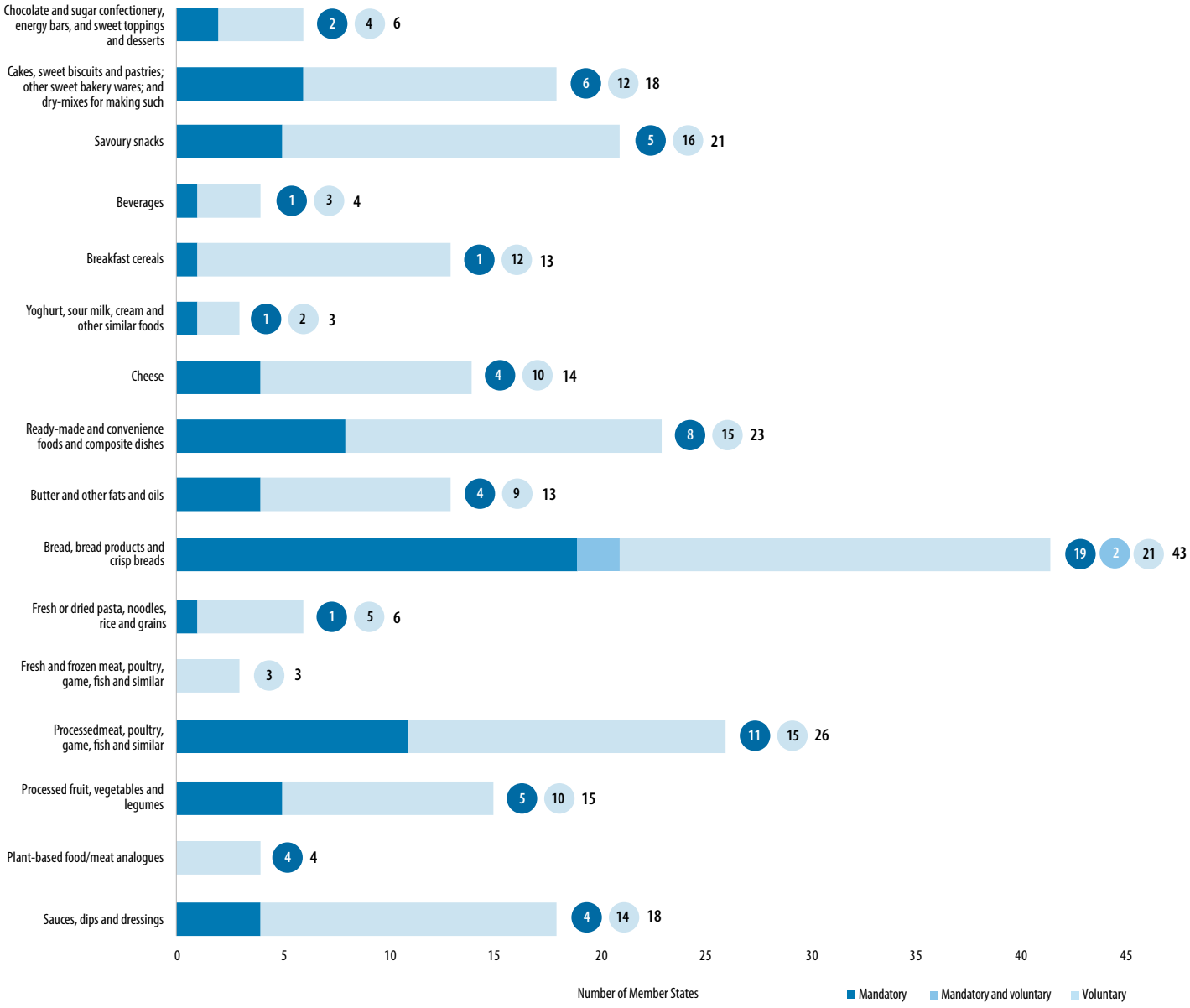


AFR: African Region; AMR: Region of the Americas; EMR: Eastern Mediterranean Region; EUR: European Region; SEAR: South-East Asia Region; WPR: Western Pacific Region

The variation of sodium content in manufactured food offers a significant opportunity for sodium reduction through reformulation and demonstrates that reducing sodium in processed food is possible, as demonstrated by the WHO global sodium benchmarks *(24)*. It is likely that reformulation of processed foods and beverages will generate the greatest impact in reducing the consumption of sodium, particularly in countries where these foods are commonly consumed.

Across the implemented reformulation policies in Member States, bread and bread products are the most targeted food category for sodium reduction, followed by processed meat, poultry, game or fish; ready-made and convenience foods and composite dishes; and savoury snacks (Figure 6).

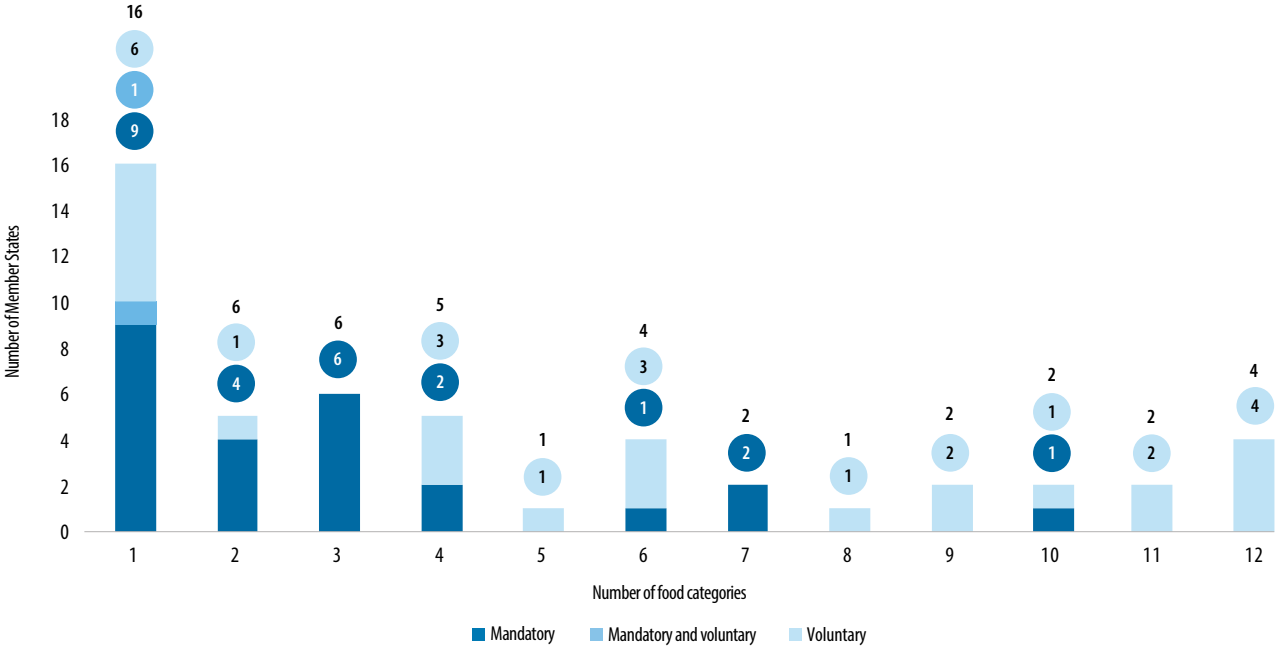
Figure 6. Number of Member States targeting different food categories through mandatory and/or voluntary reformulation policies to reduce sodium content in food[2]



[2] The food groups are based on the 18 food categories identified in the WHO Global sodium benchmarks *(24)* where all but two of the food groups (edible ices; fresh and frozen fruit, vegetables and legumes) had at least one mandatory limit or voluntary target set. Three Member States (Czechia, France and Ireland) have voluntary reformulation targets that do not specify food categories and are not included in this graph.

Mandatory limits are typically set on a smaller number of food categories, with only four Member States (Argentina, Islamic Republic of Iran, Slovakia, and South Africa) setting such limits for five or more food categories (Figure 7). Boxes 2–4 describe different approaches to reformulation.

Figure 7. Number of Member States targeting different number of food categories through mandatory and/or voluntary reformulation policies to reduce sodium content in food



Box 2. Reformulation to reduce sodium content across the food supply — Saudi Arabia (mandatory)

In 2018, with the aim of reducing sodium content in food items, the Saudi Food and Drug Authority enforced a limit of 1 g/100 g for breads *(64)* and salted yoghurts drinks on manufacturers. This regulation was followed by a salt guide *(65)* from the Saudi Food and Drug Authority inviting food manufacturers to abide by limits for sodium content for 22 processed food items.

Box 3. Reformulation to reduce sodium content across the food supply — Australia (voluntary)

The Healthy Food Partnership *(66)* was established by the Government of Australia in 2015. The aim is to improve the dietary habits of Australians by making healthier food choices easier and more accessible, and by raising awareness of appropriate food choices and portion sizes. The programme, which defines and sets voluntary maximum sodium targets for 27 food categories was rolled out in 2020 and expanded in 2021 to include an additional three food categories *(66)*. As an example, the target for maximum sodium content in leavened breads is 380 mg/100 g, to be met by June 2024. These targets cover 80% of the categories, by sales volume, for participating businesses. The first of six progress reports is scheduled in June 2022. Early modelling indicates that this voluntary approach is limited by the number of categories and adherence to targets, and that for significant sodium reduction, government-led mandatory reformulation implemented across the manufactured food supply is required *(67)*.

Box 4. Reformulation to reduce sodium content across the food supply — South Africa (mandatory)

The South African government introduced mandatory maximum limits for sodium content in 2013. The legislation was set for products in 13 food categories, including bread, breakfast cereals, margarines, meat products, snack foods and soup mixes. It is estimated that approximately 60% of total sodium intake is provided from processed foods *(68)*. Food companies were granted a period of 3 years to ensure that their products were compliant. The regulation came into effect in June 2016, and further reduction was expected 3 years later in 2019 *(69)*. Evidence from the WHO Study on global AGEing and adult health suggests a reduction of 400 mg/day sodium (1.15 g/day salt) between 2015 and 2019 *(70, 71)*.

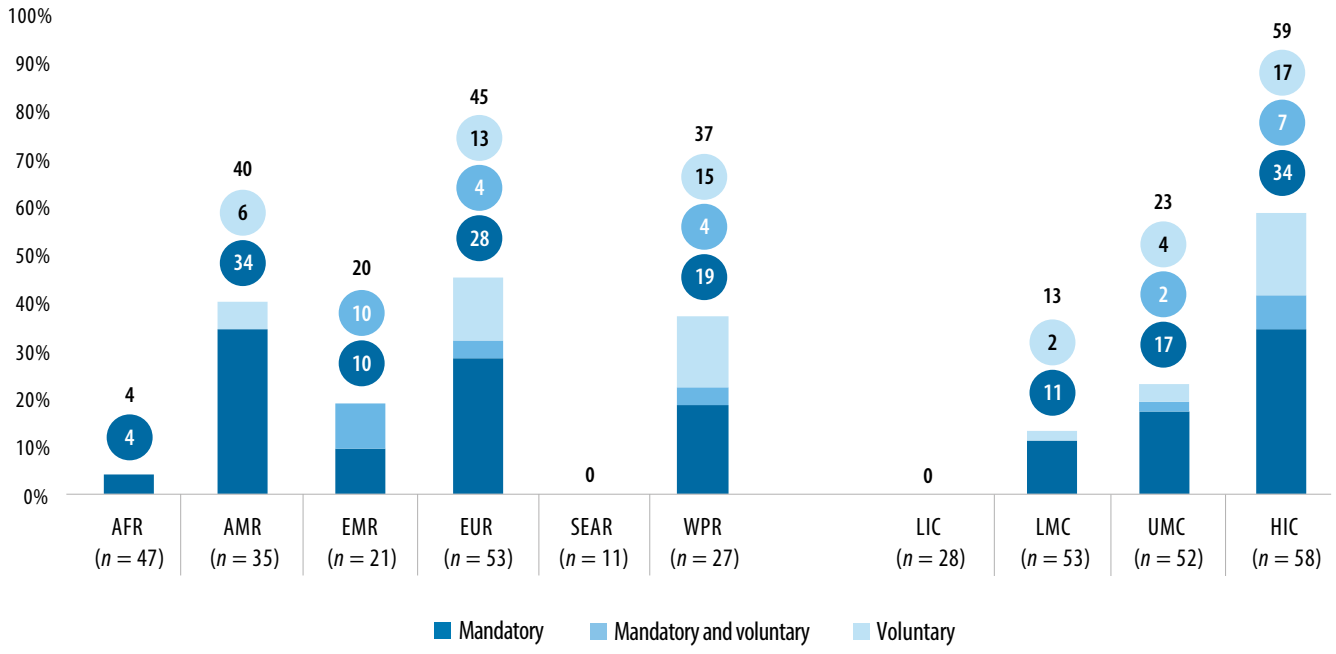
Although South Africa has mandatory limits on sodium in food products, it is yet to legislate mandatory sodium declarations on all pre-packaged food because the amended regulations relating to the labelling and advertising of foods amendment is under review *(72)*. The implementation of a nutrition declaration is critical to monitoring compliance with mandatory limits on sodium content, as well as for other food systems actions such as identifying foods low in sodium eligible for front-of-pack labelling, and for applying marketing restrictions.

Public food procurement and service policies

Healthy public food procurement and service policies set nutrition criteria for food served and sold in public settings (a limit on the use of food typically high in sodium, a maximum permissible amount of sodium in a serving of food, or a prohibition against placing saltshakers on tables) *(73, 74)*. These policies can cover the entire process of purchase, provision, distribution, preparation, service and sale of food to ensure each step meets healthy criteria.

Of the 194 Member States, 28% (n = 54) have public food procurement and service policies to reduce sodium consumption through mandatory (18%; n = 36), mandatory and voluntary (3%; n = 5) or voluntary (7%; n = 13) approaches (Figure 8). Such policies are most common in the WHO regions of the Americas, Europe and Western Pacific, and more frequently implemented in the higher the income group. These policies set a threshold for sodium in the food to be served or sold or – in 15 Member States – to restrict the availability of saltshakers in the service area. These policies were from 2006 onwards, with almost a third of the Member States having introduced these measures by 2013 when the WHO Global Action Plan for the Prevention and Control of Noncommunicable Diseases, which recommended reducing sodium content in foods in public service, was launched.

Figure 8. Proportion of Member States implementing mandatory and/or voluntary public food procurement and service policies addressing sodium by WHO region, and World Bank income group



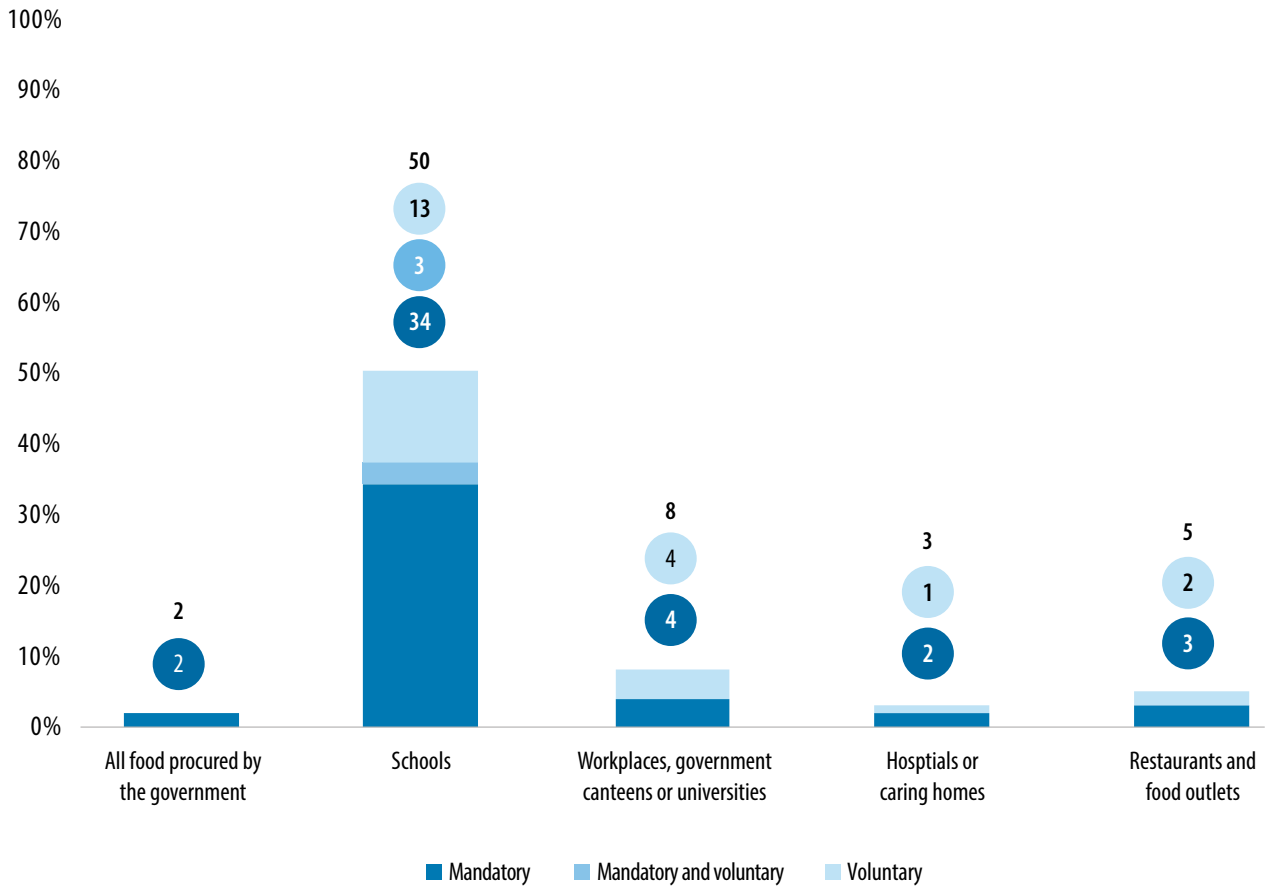
AFR: African Region; AMR: Region of the Americas; EMR: Eastern Mediterranean Region; EUR: European Region; SEAR: South-East Asia Region; WPR: Western Pacific Region

Governments worldwide have a unique opportunity and responsibility to lead by example through setting criteria for food served or sold in public settings such as government offices, schools, childcare centres, nursing homes, hospitals, health centres, community centres, seniors centres, military bases and prisons, as well as in shops or stalls surrounding these settings. Importantly, public funds should not be spent on food that is high in sodium.

The most common setting in which public food procurement and service policies are applied is schools (50 of the 54 Member States) (Figure 9). Forty-three Member States set standards for foods and beverages offered during school lunches, other meals or snacks, while 31 Member States set standards for foods and beverages sold in school cafeterias, tuckshops, snack bars or vending machines. Five Member States (Cabo Verde, Kiribati, Mongolia, Republic of Korea and Seychelles) set sodium-specific standards for food sold around the school perimeter.

Beyond the school setting, two Member States (Hungary and Saudi Arabia) have standards for all foods procured by the government, eight have standards for workplaces, government canteens or universities (Brazil, China, Malaysia, Philippines, Qatar, Saudi Arabia, Singapore, Switzerland), and three (Hungary, Malaysia and Switzerland) for caring homes or hospitals. Five Member States have standards including thresholds for sodium for restaurants and food outlets (Argentina, Bolivarian Republic of Venezuela, Brunei Darussalam, Republic of Korea, Singapore) (Annex 2, Table A2.3). Boxes 5 and 6 illustrate two different approaches to public food procurement.

Figure 9. Number of Member States implementing mandatory and/or voluntary public food procurement and service policies addressing sodium by setting



Box 5. Public food procurement and service policies — Brazil (mandatory)

The Brazilian Ministry of Health published Ordinance No. 1.274 of 7 July 2016 *(75)* to improve health in workplaces. It requires all restaurants, canteens and cafeterias within the ministry and its entities to serve and sell food that adheres to the Dietary guidelines for the Brazilian population *(76)*. This includes using fresh or minimally processed food products in cooking; prohibits serving or selling sugar-sweetened beverages; and imposes strict limitations on serving, selling, promoting or advertising ultra-processed food products (as defined in the Pan American Health Organization Nutrient Profile Model, including food products with greater than or equal to 1 mg of sodium per 1 kcal) *(77)*. In addition to the criteria for serving and selling food in food venues, the Ordinance also applies to events and meetings held or contracted by the ministry. This includes meals and snacks served or catered during meetings, coffee breaks, celebrations and other events. The ministry published Guide for the preparation of healthy meals in events *(78)* to provide implementation guidance for meeting the criteria, while maintaining local ingredients and the cultural value of food. The guide is also intended to be applied voluntarily in other public or private institutions.

Box 6. Public food procurement and service policies — Seychelles (mandatory)

Seychelles adopted a National School Nutrition Policy in 2008, which sets standards for school meals, as well as guidelines for food provision in tuckshops and during fundraising and other activities. The standard for school meals is that these should not contribute more than 30% of recommended sodium intake for school-aged children, that is, 210 mg/day for children in creche, 360 mg/day for children in primary school and 480 mg/day for children in secondary school. The guidelines for tuckshops and fundraising and other activities state that no foods of low nutritional value should be offered or sold. In the 2018 revised tuckshop guidelines, foods and beverages of low, moderate and high nutritional value are being classified based on a traffic light system.

The national government developed a guidance document to support implementation of the policy, including a monitoring tool and sample lease agreement for school tuckshops. Monitoring was supposed to be done locally by school nutrition action groups in every school, comprising a teacher, student, parent, tuckshop owner, dining staff member, school nurse, dental therapist and district representative. However, there are very few schools where this group has been set up and still is operational. Central and local authorities also monitor nutrition in schools at least once a year using the monitoring tool, reporting results back to the management team of each corresponding school.

Nutrition labelling

Nutrition labelling is a powerful tool. It not only informs consumers about the ingredients and nutrient content of the food, but can also influence consumers to make healthier choices and induce food manufactures to develop healthier food products.

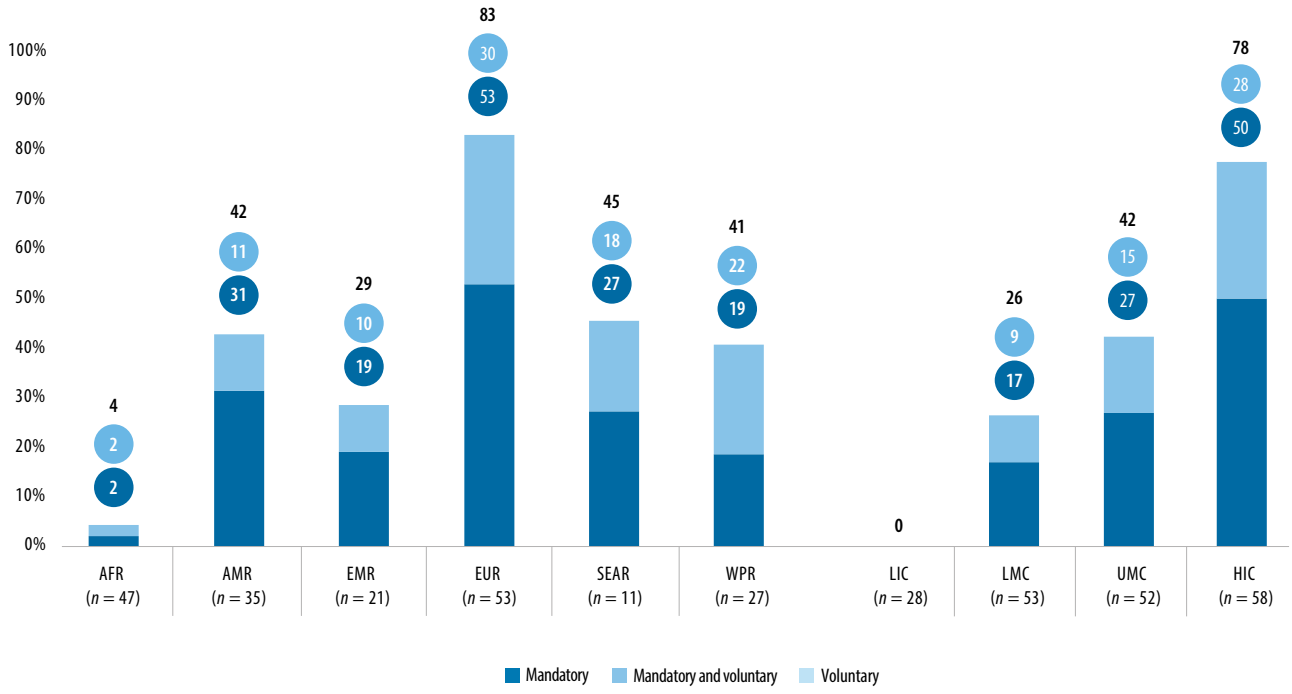
Nutrient declarations

Declaration of the amount of sodium on the food label is fundamental for the implementation and monitoring of policies on reformulation, interpretive nutrition labelling such as front-of-pack-labelling, public food procurement and service policies, fiscal policies, and marketing restrictions *(79)*.

As required by *Codex alimentarius* (food code) *(80)*, the nutrient declaration, which is usually placed on the back or side of the package and lists the nutrient content of a food, should be mandatory for all commercial pre-packaged foods. Countries are advised to adopt regulations following the codex guidelines on nutrition labelling *(80)* on how nutrient declarations should be structured and which nutrients should be mandatory to declare. The guidelines recommend stating the sodium content, but national authorities may express the total amount of sodium in salt equivalents as "salt".

Of the 194 Member States, 43% (n = 83) have a mandatory declaration of sodium on pre-packaged food, of which 26% (n = 52) have other mandatory, and 16% (n = 31) have no other mandatory approaches (Figure 10). A large majority of Member States in the European Region implement mandatory nutrient declaration of sodium.

Figure 10. Proportion of Member States with mandatory declaration of sodium on pre-packaged food by WHO region, and World Bank income group



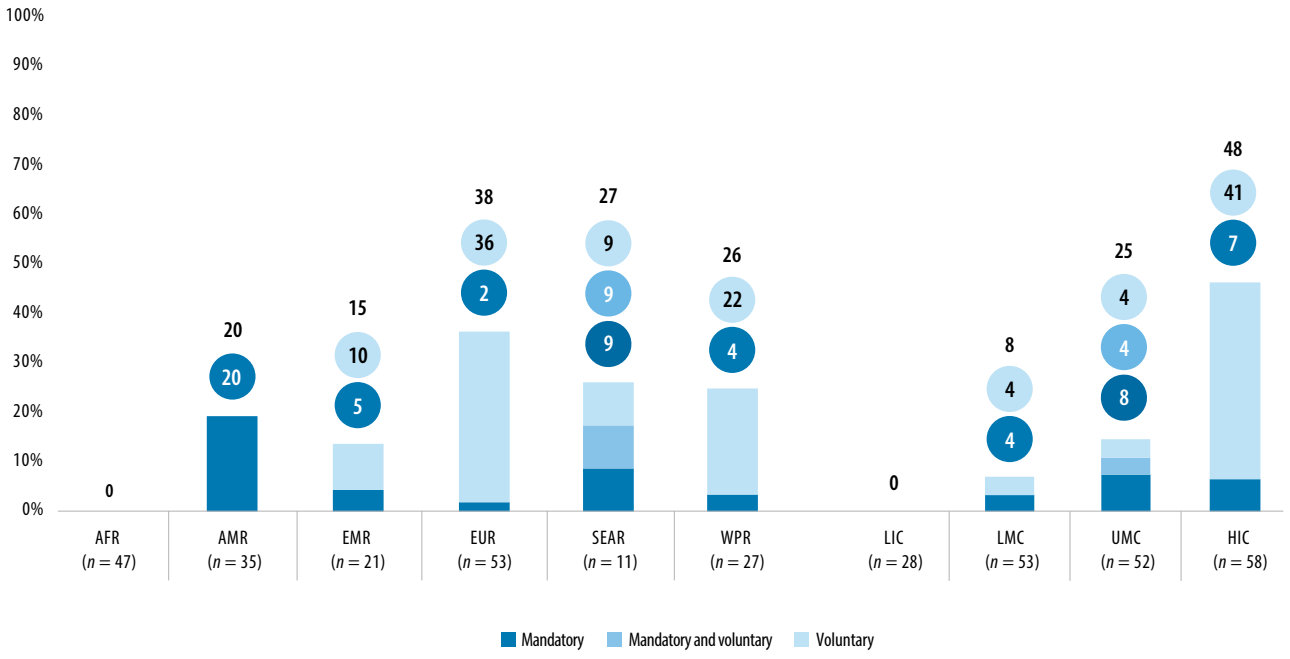
AFR: African Region; AMR: Region of the Americas; EMR: Eastern Mediterranean Region; EUR: European Region; SEAR: South-East Asia Region; WPR: Western Pacific Region

Front-of-pack labelling

Front-of-pack nutrition labelling on pre-packaged foods contributes to increasing consumer awareness and enables consumers to make healthier choices, change purchasing intentions, and provide industry incentive to reformulate and produce healthier products *(81, 82)*.

Of the 194 Member States, 21% (n = 40) have implemented front-of-pack labelling systems that include sodium in an underlying nutrient profile model, through mandatory (6%; n = 11), mandatory and voluntary (1%; n = 1) or voluntary (14%; n = 28) approaches (Figure 11). Such front-of-pack labelling systems are most common in the European Region. In the European and Western Pacific regions these measures tend to be voluntary, in contrast to the Region of the Americas where they are mandatory. The first such front-of-pack labelling were voluntary endorsement logos introduced in 1998 and the early 2000s, with the first mandatory system being introduced in 2011. By 2013, about a quarter of the Member States with such measures had introduced front-of-pack labelling systems that included sodium in an underlying nutrient profile model.

Figure 11. Proportion of Member States with mandatory and/or voluntary front-of-pack labelling systems, by WHO region, and World Bank income group

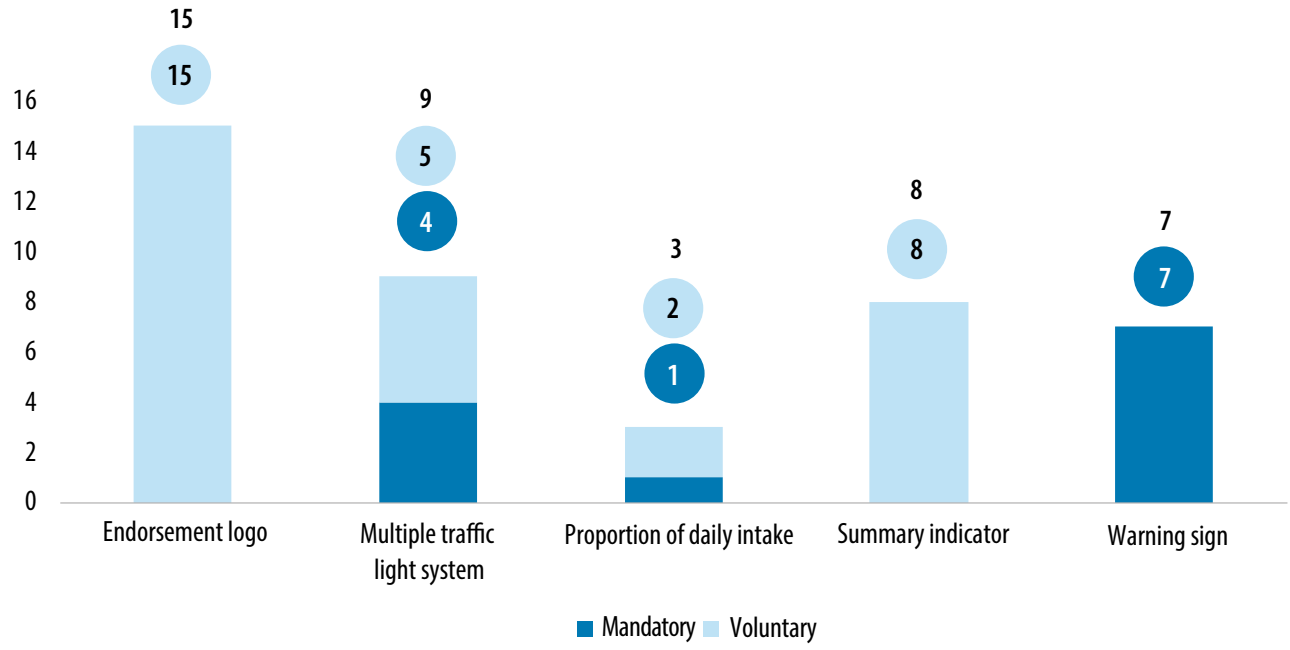


AFR: African Region; AMR: Region of the Americas; EMR: Eastern Mediterranean Region; EUR: European Region; SEAR: South-East Asia Region; WPR: Western Pacific Region

The most effective systems are interpretive front-of-pack labelling systems that provide "at-a-glance" guidance on the relative healthfulness of the product, with or without additional nutrient information. Since most shoppers spend a few seconds at most examining food labels before deciding, labels must be clear and easy to understand *(83)*. Interpretive systems therefore apply symbols, figures or cautionary text to indicate the overall healthfulness or nutrient content of a product.

The most common format used in front-of-pack labelling in the context of sodium reduction was an endorsement logo ($n = 15$). Such logos and summary indicators were always implemented voluntarily. Warning signs were the most common mandatory scheme, implemented especially in Latin America and in Israel. The multiple traffic light and proportion of daily intake systems were implemented through both mandatory and voluntary approaches (Figure 12; Annex 2, Table A2.4). Member States typically implement one single front-of-pack labelling system, except two Member States (Indonesia, Thailand) that have two systems.

Figure 12. Number of Member States with mandatory or voluntary front-of-pack labelling systems



Boxes 7–10 describe different approaches to front-of-pack labelling systems in Chile, Sri Lanka, Australia and New Zealand, and France, respectively.

Box 7. Front-of-pack labelling systems — Chile (mandatory)

The *Food Composition and Food Advertising Law* (2013) *(84),* enforced by the decree *Modifica decreto supremo nº 977, de 1996, reglamento sanitario de los alimentos* (2015) *(85),* requires front-of-package warning labels ("high in") on packaged foods that exceed specific thresholds for sodium (10 mg/100 g in food or food products). It is the first law to simultaneously regulate a front-of-pack warning label, place restrictions on food marketing to children under 14 years of age, and set restrictions on the school food environment. The objectives are to protect children and promote informed selection of food, and decrease consumption of food with excessive amounts of sugars, sodium and saturated fat. The warning label was developed based on quantitative and qualitative studies conducted with different population groups. The warning label performed the best in terms of visibility, understanding and intention to purchase. Chile chose to use cut-off values per 100 g instead of per serving because research found that the Chilean population was not aware of the definition of serving size, and therefore using this reference would make the label more difficult to interpret. Using a per 100 g reference allows for a standard measure for all foods, as it describes food based on the nutritional quality of the food, not the way it is consumed, and allows comparison both within and between categories. Evaluation after implementation of the "high in" warning label showed strong public support, and impact on both purchasing behaviour and product reformulation *(85)*. Chile has an enforcement system in place with sanctions for noncompliance.

Box 8. Front-of-pack labelling systems — Sri Lanka (mandatory)

Food (Colour Coding for Sugar, Salt and Fat) Regulations 2019-No 2119/3 *(86)* legislates mandatory front-of-pack labelling regulations for pre-packaged solid and semi-solid processed foods based on the content of sugar, salt and fats. The amount of salt specified is as follows:

Total Salt content in Solid or Semi-solid Food

Red logo: salt content (per 100 g): More than 1.25 g

Amber logo: salt content (per 100 g): 0.25 g to 1.25 g

Green logo: salt content (per 100 g): Less than 0.25 g

This legislation was introduced in April 2019 and was to come into force from 1 June 2019. However, it has been operating since 1 January 2021 due to several industrial concerns.

Several factors have influenced the development and approval of the legislation, including; the increasing burden of noncommunicable diseases in Sri Lanka, the positive international momentum for evidence-based interventions, a dedicated Food Control Administration unit within the Ministry of Health to coordinate and implement legislation, and the Food Advisory Committee — a multiple stakeholder committee to advise the Minister of Health on formulation of regulations under the provisions of the Food Act in Sri Lanka.

Box 9. Front-of-pack labelling systems — Australia and New Zealand (voluntary)

Australia and New Zealand have implemented a voluntary front-of-pack nutrition label — the Health Star Rating system. The Health Star Rating system summarizes the nutritional quality of a product and assigns it a rating from 0.5 stars (least healthy) to 5.0 stars (most healthy) in 10 half-star increments *(87, 88)*. The rating is calculated based on an algorithm generating points. The lower the number of points, the better Health Star Rating score, based on a range of points for each food and beverage category. For sodium, the points range from 0 for food products with a sodium content of ≤90 mg/100 g or 100 ml and up to 30 for those with a sodium content of <2700 mg/100 g or 100 ml. In 2019, at the 5 year review, the Health Star Rating system appeared on 31% of eligible products in Australia, and 21% in New Zealand *(89)*. Research in both countries indicates that the system is driving healthier reformulation of some products *(90)* — for example, the sodium content of products in New Zealand decreased by almost 5% *(91)*. Nonetheless, research indicates that the slow uptake by only a small proportion of companies illustrates the limits of commercial goodwill in applying front-of-pack labelling systems voluntarily *(92)*. The 5 year review concluded that if uptake did not reach 70% within a further 5 years, the Health Star Rating system should be mandated to provide consumers with the full benefit.

Box 10. Front-of-pack labelling systems — France (voluntary)

Nutri-Score (France) is underpinned by a nutrient profiling system derived from the United Kingdom's Food Standards Agency nutrient profiling model *(93, 94)*. Nutri-Score's nutrient profiling system allocates points for "unfavourable" content: energy (kJ; 0–10 points), total sugar (g; 0–10 points), saturated fatty acids (g; 0–10 points) and sodium (mg; 0–10 points), and subtracts points for "favourable" content: fruit, vegetable and nuts (0–5 points), fibre (0–5 points) and protein (0–5 points). Foods with a sodium content of less or equal to 90 mg/100 g scores zero points, and foods with a sodium content of more than 900 mg/100 g scores the maximum of 10 points. The resulting final score ranges between 15 and +40 (most healthy foods to less healthy foods). Therefore, the lower the score the healthier the food. Nutri-Score defines five categories of nutritional quality ranging from "green" to "red", and letters A to E. The entire scale appears on the label. Companies must adhere to certain requirements, such as size and colour. Industry is not permitted to modify, add or remove any elements of the Nutri-Score logo *(95)*. Multiple studies have assessed perception, understanding and use of the Nutri-Score label in purchasing situations, and demonstrated a positive impact, including sub-analyses in disadvantaged populations *(96)*.

Other interpretive nutrition labelling approaches

Menu labelling in food service facilities enables healthier consumer choices in restaurants and canteens, or labelling of food options in vending machines. These schemes can be voluntary or mandatory for specific settings or outlets, and indicate the nutrients to be displayed. Other interpretive labelling includes back-of-pack warning messages on, for example, high sodium content and the associated health risks.

Argentina *(97)*, Finland *(98-101)* and Indonesia *(102)* have implemented mandatory warning messages on foods high in sodium; these can be placed anywhere on the package and are therefore not considered front-of-pack labelling. Finland implemented a mandatory salt warning in 1991.

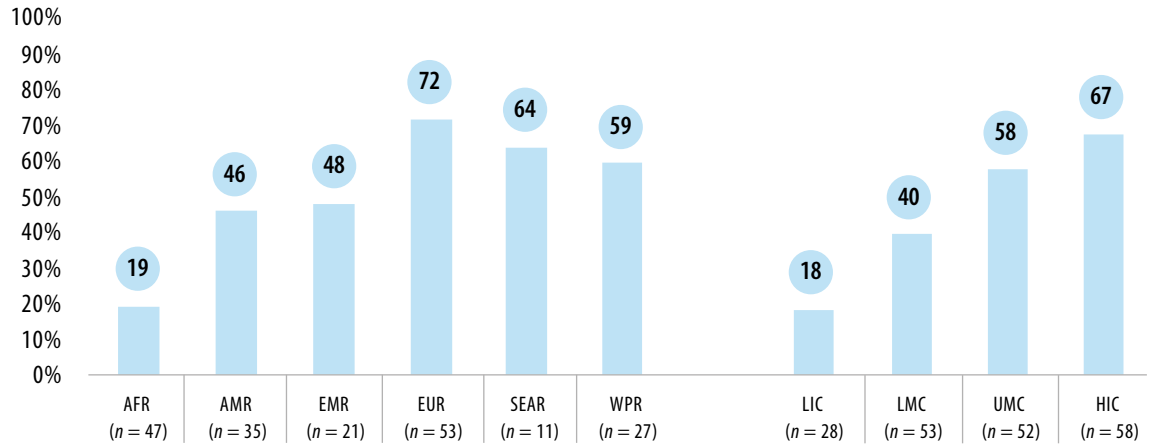
China *(103-106)* and Malaysia *(107)* have implemented voluntary menu labelling, including sodium among other nutrients for purchase point labelling on, for example, boards, tables and electronic menus, as well as packaging and liners of food products, trays, tableware or takeaway wrapping in settings such as government canteens, schools, restaurants and restaurant/fast food chains. Malaysia implemented the measure in 2008.

Mass media campaigns

Mass media play an important role in information delivery to much of the population. Sodium reduction campaigns may be targeted to influence a specific behaviour, change social norms or educate consumers and/or other stakeholders, or to support the development or implementation of sodium reduction policies. Education and communication work best as part of a comprehensive package of actions rather than in isolation.

Of the 194 Member States, 49% (*n* = 96) have had a government-led mass media campaign focusing on sodium reduction, which were reported to WHO in 2016–2017 or later (Figure 13). Most frequently implemented in the European Region and among high-income countries, such campaigns are also implemented by many countries in the remaining regions and income groups.

Figure 13. Proportion of Member States with mass media campaigns by WHO region, and World Bank income group



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

Boxes 11–13 describe three approaches to mass media campaigns in China, Kazakhstan and South Africa, respectively.

Box 11. Mass media campaigns — China

In China, WHO and Resolve to Save Lives worked with the National Institute for Nutrition and Health (Chinese Center for Disease Control and Prevention) and Tsinghua University, using the evidence-based communication for health *(108)* approach to design, test and measure the impact of behavioural insights interventions to reduce sodium intake.

Data collected in 2019 *(109)* suggested that despite public awareness that high sodium consumption is unhealthy, many people still found it difficult reduce salt when eating out because of lack of options and because they were reluctant to ask for a dish to be modified.

To address these barriers, a research study tested the effectiveness of communication and behavioural interventions on consumer interaction with a popular online food delivery platform in multiple Chinese cities by delivering health messages and making changes to the choice architecture on the app. Findings from the study showed that a health message alone, compared with the control group, was not effective in nudging consumers towards lower-salt dishes. In contrast, changes to the choice architecture, in which consumers were presented with a submenu with options for "regular salt" and "reduced salt", were effective in prompting these consumers to choose healthier options compared to the control group. Additional laboratory studies to verify compliance by restaurants found that menu items ordered as "low sodium" options had on average 25% less sodium than dishes ordered with standard sodium settings.

The study holds promise for future research interventions, and WHO and its partners plan to use these results to further explore health promotion strategies in China and inform policy recommendations, where applicable.

Box 12. Mass media campaigns — Kazakhstan

The burden of noncommunicable disease poses significant challenges for the health system in Kazakhstan, where the COVID-19 pandemic has exacerbated access to services and care. To prevent noncommunicable diseases, the government is developing and strengthening policies to improve the food environment, including sodium reduction strategies. Like many countries, several challenges to reducing sodium intake have been noted, including but not limited to, resistance from the industry and business sectors, and population behaviours, cultural norms and traditions. While preparations for reducing the sodium content of manufactured foods and drinking water are underway, the development of a communication campaign is a key priority. The campaign will target the general population, but with a focus on women, with a series of key messages on how to reduce sodium in the home.

Box 13. Mass media campaigns — South Africa

An advocacy group, Salt Watch, was formed in 2014 and funded, in part, by the National Department of Health through the Heart and Stroke Foundation South Africa. It was mandated to run a mass media campaign to increase public awareness related to the association between high sodium intake, blood pressure and cardiovascular disease, as well as identifying foods high in sodium and the need to reduce sodium added during cooking and to food at the table. The campaign was based on behaviour change principles and featured a well-known South African medical doctor and media personality. After extensive piloting, the campaign ran for 6 months, with an average of 44 television airings and 131 radio airings per month. The campaign was supported by activities including information and education materials, the Salt Watch website, and tools such as lower-sodium recipes that were distributed across various settings and to health care professionals. The campaign further generated additional print and social media exposure and pick-up. An evaluation of the campaign reported a significant behaviour change towards taking steps to control sodium intake.

Marketing restrictions

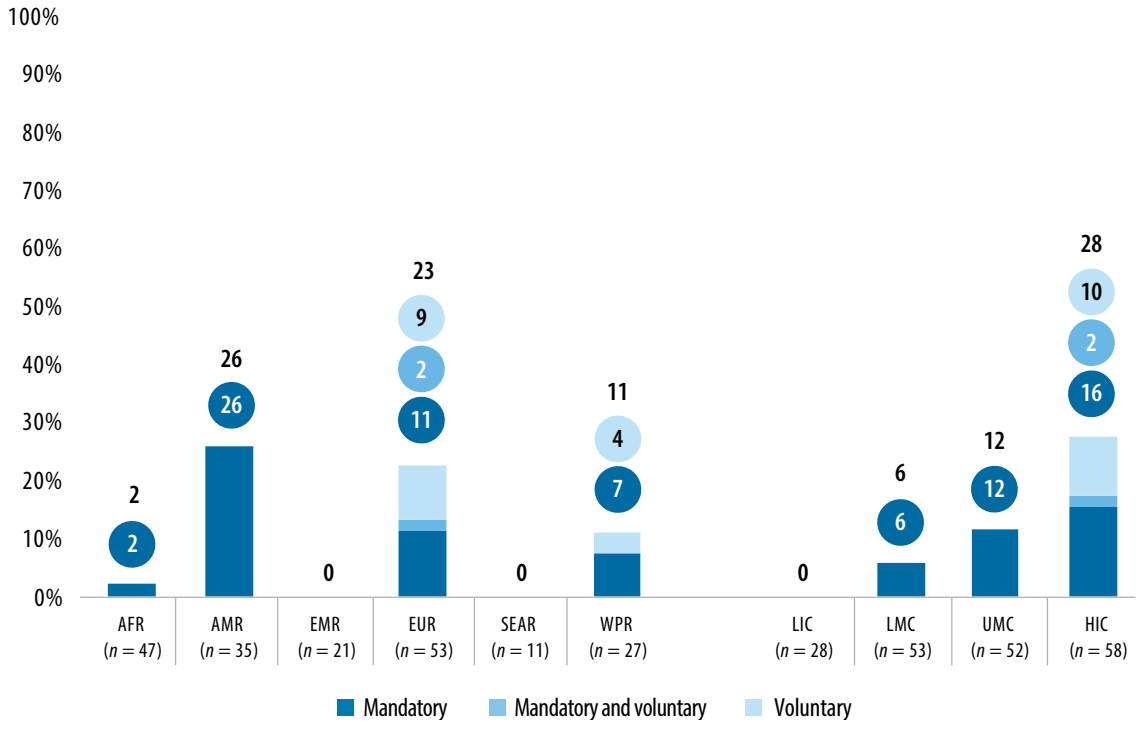
Marketing impacts food preferences, purchase requests and consumption patterns *(110-112)*. Implementing marketing restrictions limits exposure to these foods and beverages, decreases demand, and provides industry incentive to reformulate and market healthier products *(111)*.

In 2010, the World Health Assembly adopted a set of recommendations on the marketing of foods and non-alcoholic beverages to children, which calls for national and international action to reduce the impact on children of marketing of foods high in saturated fats, *trans*-fatty acids, free sugars, or salt *(113)*.

In 2020, the WHO-UNICEF Lancet Commission on Child Health noted that commercial marketing of products that are harmful to children (unhealthy foods, tobacco, alcohol, formula milk, sugar-sweetened beverages, potentially damaging social media, and the inappropriate use of personal data) is one of the most underappreciated risks to health and well-being *(114)*.

Of the 194 Member States, 13% ($n = 25$) have implemented policies to restrict the marketing of food and non-alcoholic beverages that include sodium in an underlying nutrient profile model to identify which food products are not allowed to be marketed through mandatory (9%; $n = 18$), mandatory and voluntary (1%; $n = 1$) or voluntary (3%; $n = 6$) approaches (Figure 14). Such marketing restriction policies were most frequent in the Region of the Americas, where they also were mandatory, and among higher-income groups of countries. These policies were implemented from 2008 onwards. By 2010, which was the year WHO adopted a set of recommendations on marketing of food and non-alcoholic beverages to children, 16% of these Member States had introduced such measures, and 32% had introduced them by 2013, when the WHO Global Action Plan for the Prevention and Control of Noncommunicable Diseases was launched.

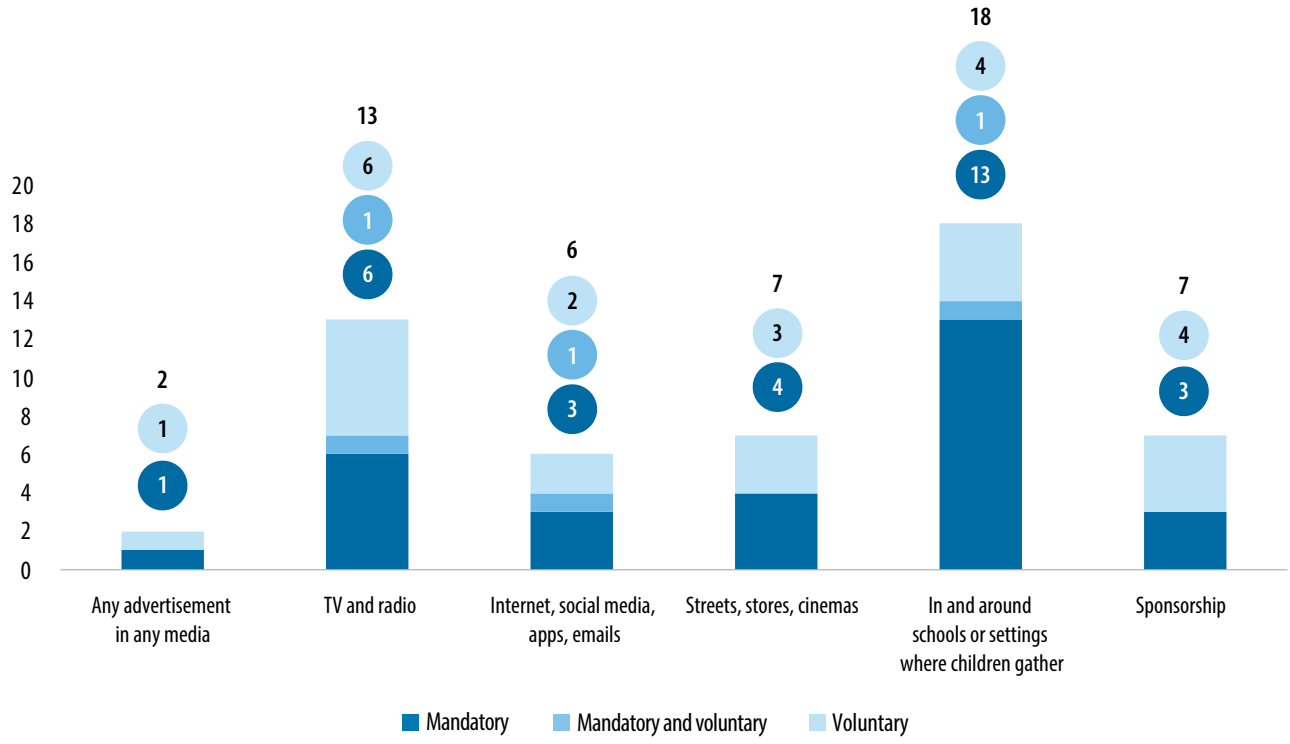
Figure 14. Proportion of Member States with mandatory and/or voluntary marketing restriction measures that includes sodium in an underlying nutrient profiling model by WHO region, and World Bank income group



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

These measures most frequently restrict marketing in and around schools or settings where children gather (*n* =18) and typically with mandatory approaches, followed by restriction of marketing on television and radio (*n* =13) (Figure 15, Annex 2, Table A2.5). Only six Member States have marketing restrictions on Internet, or in social media, apps or emails, and and only two Member States (Brunei Darussalam and Chile) restrict marketing across all media platforms. Two Member States (Cabo Verde and Panama) have mandatory policies that only apply to schools, and two Member States (Brazil and Peru) have policies that only require a mandatory health warning or message on advertisements.

Figure 15. Number of Member States with mandatory and/or voluntary marketing restriction measures that includes sodium in an underlying nutrient profiling model addressing different channels and settings



Boxes 14 and 15 describe two mandatory approaches to marketing restrictions in Chile and the Republic of Korea, respectively.

Box 14. Marketing restrictions — Chile (mandatory)

The *Food Composition and Food Advertising Law* (2013) *(84)*, enforced by the decree *Modifica decreto supremo nº 977, de 1996, regalement sanitario de los alimentos* (2015) *(85),* requires front-of-package warning labels on packaged foods that exceed specific thresholds for sodium (10 mg/100g in food or food products). The law then uses the warning labels as the basis for additional, coordinated regulations that prohibit products that carry warning labels from being sold at school kiosks or marketed to children, including on school property. The marketing restrictions also prohibit the use of child-directed marketing tactics, such as using cartoon characters or other animations, on packages or advertisements. The regulation also requires nutrition education for all kindergarten, primary and secondary students. Early results indicate that after the initial implementation of the regulations, there was a significant decrease in the amount of sodium in packaged foods (savoury spreads, cheeses, ready-to-eat meals, sausages, and soups) *(117)*.

To support the implementation of the regulations and raise awareness about the warning label, an advertising campaign consisting of commercials, videos and downloadable posters was conducted *(118)*.

Box 15. Marketing restrictions — Republic of Korea (mandatory)

The *Special Act on Safety Management of Children's Dietary Lifestyle* (2008) *(115)* restricts television advertising of energy-dense, nutrient-poor food and beverages during children's prime time viewing (from 17:00 to 19:00). The nutrient standards for high-calorie and low-nutrient food includes a threshold for sodium content of maximum 600 mg/serving. It also bans child-directed marketing tactics, such as free give-away toys or gifts with the purchase of nutritionally inadequate foods. The regulation has resulted in changes in television advertising practices of food companies. In comparing television advertisements of energy-dense, nutrient-poor foods aired on the five major channels before and after the regulation's implementation, the total advertising budget, number of advertisement placements, and rating points decreased significantly during both regulated and nonregulated hours. The total advertising budget decreased by 31%, and the number of advertisement placements dropped by 58% (from 6528 placements in 2009 to 2731 placements in 2010) *(116)*.

Fiscal policies

Fiscal policies may include taxes on unhealthy foods and beverages or the removal of industry tax benefits for development and marketing of foods high in sodium. The public health, economic and social benefits include the generation of tax revenue; industry incentive to reformulate and market healthier products; and reducing consumption and the associated harms. Taxes are typically financially regressive for lower-income individuals but are considered progressive because of benefits to nutrition and health. The benefits of the health effect are increased if the tax revenues are used for other health promotion strategies, including retail, manufacturing or agricultural incentives to reduce the price of healthier food products. Rather than being punitive, economic incentives and disincentives "normalize" the market by bringing the prices of different foods closer to their true societal cost *(119)*.

Of the 194 Member States, one Member State (Hungary) has had an excise tax since 2011 targeting foods high in sodium through underlying nutrient profile modelling.

Several other Member States tax foods that may be typically high in sodium, such as salty snacks or bouillon cubes, but are without a threshold for sodium content in an underlying nutrient profile model and therefore not included in the Sodium Country Score Card.

Box 16 describes the Hungarian approach to fiscal policies targeting foods high in sodium.

Box 16. Fiscal policies — Hungary (mandatory)

In Hungary, the *Public Health Product Tax* came into effect in September 2011. It is intended to reduce consumption of foods containing unhealthy levels of sugar, salt and other ingredients, promote healthy eating and create an additional mechanism for financing public health services *(120)*. This specific excise tax is applicable to pre-packed and non-staple foods only, paid on a per unit measure (kg, litre) and based on sugar, salt and methylxanthine (caffeine) content, with rates varying depending on the product category. From 2022 the nutrient profile model was complemented with saturated fatty acids for salty snacks, and fibre content for the newly added food category mueslis and breakfast cereals.

The tax applies to soft drinks, energy drinks, flavoured beers, alcoholic soda beverages, pre-packaged sweetened products, bakery products, cocoa-containing products, fruit preserves, salty snacks, bouillons, condiments, mueslis and breakfast cereals, and filled pastry and pasta products. From July 2022, products where added sugar was substituted with artificial sweeteners are also subject to the tax.

The first impact assessment, in 2012 showed that after initiating the tax, consumption of taxed food products decreased concomitantly with the decrease in the supply and sale of those products. The 2018 impact assessment revealed that this effect could not be sustained, and the ratio of adults consuming products subject to the tax increased in 2018 compared with 2012. The tax did, however, reach its purpose in terms of generating revenue for public health programmes and realizing the estimated tax revenue.

A positive consequence of the Public Health Product Tax is that approximately 40% of unhealthy food product manufacturers changed their product formulas to either reduce or eliminate unhealthy ingredients (28% and 12%, respectively). Although this behaviour does not generate revenue for the budget, it reduces the availability of unhealthy food items and may result in lower health system costs for diet-related chronic diseases *(121)*.

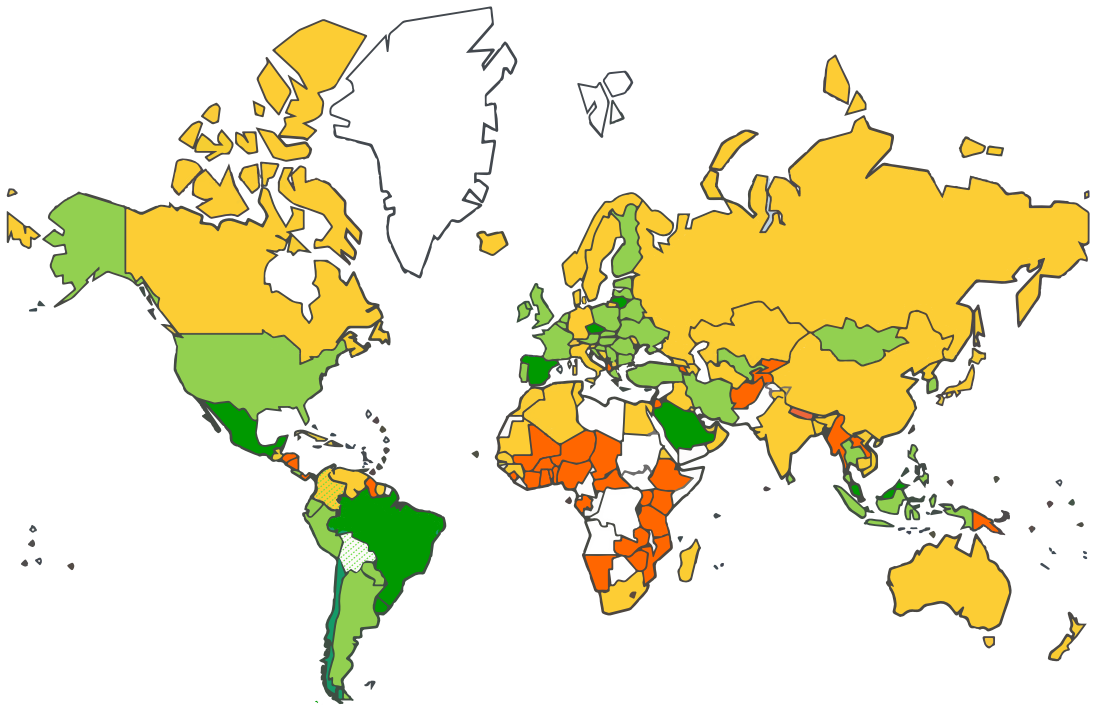
An important lesson from the experience in Hungary is that the use of a nutrient profile model to differentiate tax rates, and making sure that there are healthy food substitutes, makes the development of such taxes easier. It is also necessary to regularly review the range of included products and tax rates.

Sodium Country Score Card

The Sodium Country Score Card monitors a country's progress in making national commitments and taking a multifaceted approach to implementing policies to reduce sodium intake *(20)*.

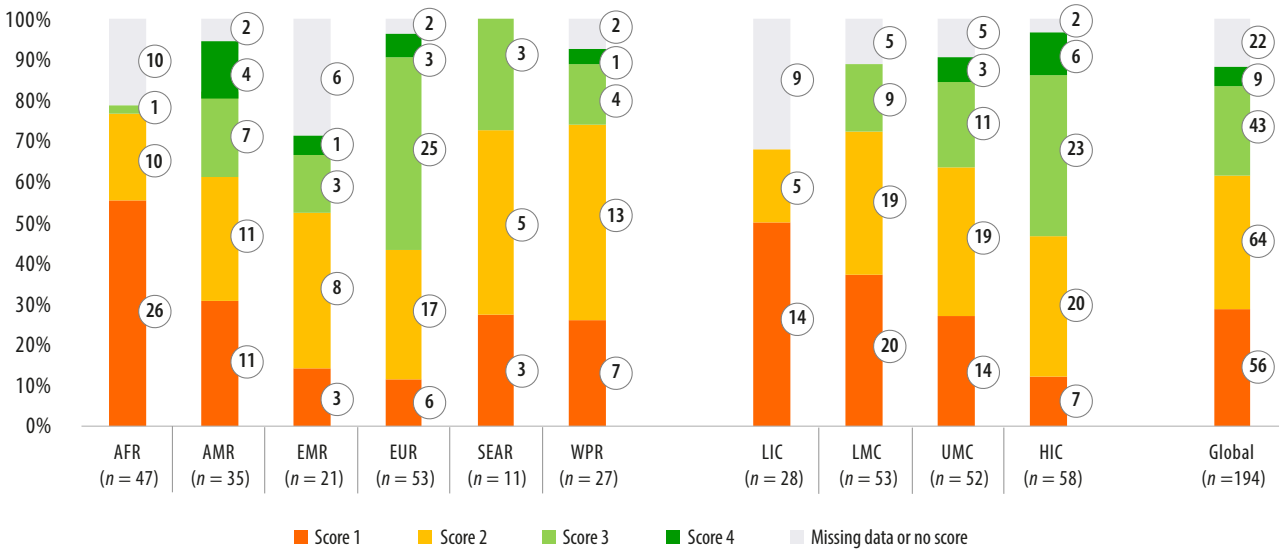
As of October 2022, 5% of Member States (n = 9) have implemented at least two mandatory sodium reduction policies and all WHO sodium-related best buys for tackling non communicable diseases. A further 22% of Member States (n = 43) have implemented at least one mandatory policy. This means that 26% of the world's population live in countries with mandatory measures towards sodium reduction, including mandatory declaration of sodium. At the same time, 33% of Member States (n = 64) have implemented at least one voluntary policy to reduce sodium intake, while 29% of Member States (n = 56) have made a policy commitment towards sodium reduction. The higher the income group, the higher the score reached. In terms of regional differences, the European Region has the highest level of scores 3 and 4 (Map 1, Figure 16).

Map 1. Global sodium reduction policies and measures as of October 2022



- **1. National policy commitment to reduce sodium intake:** National policies, strategies or action plans that express a commitment to reduce sodium intake
- **2. Voluntary measures to reduce sodium:** Voluntary measures that reduce sodium in the food supply or encourage consumers to make healthier food choices about sodium
- **3. Mandatory measures adopted for sodium reduction:** Mandatory measures to reduce sodium in the food supply or encourage consumers to make healthier food choices, including mandatory declaration of sodium on all pre-packged food
- **4. Multiple mandatory measures adopted for sodium reduction, and implementation of all related WHO Best Buys for tackling NCDs:** Multiple mandatory measures, mandatory declaration of sodiu mon all pre-packged food, and all WHO sodium-related best buys
- Mandatory measures for sodium reduction adopted to bring country to Score 3 (not yet all in effect
- Missing data

Figure 16. Sodium Country Scores by WHO region, and World Bank income group



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

Sodium Country Score Cards: African Region

In the African Region (Table 1), no Member State has reached **score 4**. However, Seychelles is the first Member State to reach **score 3**, as the result of the implementation of a public food procurement and service policy (Box 6, page 21) that mandates standards for sodium content and having implemented mandatory declaration of sodium on pre-packaged food. In addition, four other Member States have implemented mandatory measures but do not fully qualify for score 3: Cabo Verde, Mauritius and South Africa have mandatory measures with an underlying nutrient profile model that includes sodium, but do not have a mandatory sodium declaration on all pre-packaged food. The mandatory limits on salt in food products in South Africa is described in Box 4 (page 18). On the other hand, Algeria has mandatory declaration of sodium on pre-packaged food but no other mandatory measure.

Ten Member States only have voluntary policies to reduce sodium and remain in **score 2**; these are media campaigns (Algeria, Cabo Verde, Comoros, Eritrea, Gambia, Guinea, Madagascar, Mauritania, South Africa) but also voluntary reformulation targets (Senegal). Box 13 (page 29) describes voluntary mass media campaigns in South Africa.

Finally, 26 Member States in the Region (55%) only have a national policy commitment to reduce sodium intake with no further voluntary or mandatory measures and therefore remain in **score 1**. This makes the African Region the region with the highest share of Member States that only have a national policy commitment.

For the remaining 10 Member States (Angola, Botswana, Cameroon, Congo, Democratic Republic of the Congo, Equatorial Guinea, Guinea-Bissau, Liberia, Malawi, South Sudan), there has either been no action to reduce sodium intake or the status is unknown (Annex 1).

Table 1. Sodium reduction policies and other measures implemented in the African Region

Score 1	Score 2	Score 3	Score 4
A national policy commitment	At least one voluntary policy	At least one mandatory policy + a declaration of sodium on pre-packaged food	At least two mandatory policies and all WHO sodium related best buys + a declaration of sodium on pre-packaged food
Benin, Burkina Faso, Burundi, Central African Republic, Chad, Côte d'Ivoire, Eswatini, Ethiopia, Gabon, Ghana, Kenya, Lesotho, Mali, Mauritius, Mozambique, Namibia, Niger, Nigeria, Rwanda, Sao Tome and Principe, Sierra Leone, Togo, Uganda, United Republic of Tanzania, Zambia, Zimbabwe	Algeria, Cabo Verde, Comoros, Eritrea, Gambia, Guinea, Madagascar, Mauritania, Senegal, South Africa	Seychelles	
26	10	1	0

Sodium Country Score Cards: Region of the Americas

In the Region of the Americas (Table 2), Brazil, Chile, Mexico and Uruguay have reached **score 4**, and implement at least two mandatory policies for sodium reduction, and all WHO sodium-related best buys for tackling noncommunicable diseases. All four countries have mandatory public food procurement and service and front-of-pack labelling, but voluntary reformulation of food. Chile, Brazil and Uruguay also have mandatory marketing restrictions. The mandatory public food procurement and service policy in Brazil (Box 5, page 21), and the mandatory front-of-pack labelling system and marketing restrictions in Chile (Boxes 7 and 15 , pages 25 and 31). In addition, Argentina has adopted mandatory front-of-pack labelling and marketing restrictions that will come into effect in December 2022, this will result in an uplift to score 4. Another four Member States (Costa Rica, Ecuador, El Salvador, Peru) have at least two mandatory measures, but they do not implement all the best buys which would result in an uplift to score 4. In particular, reformulation is only implemented by Costa Rica; front-of-pack labelling by Ecuador and Peru; public food procurement and service policies by Costa Rica, El Salvador and Peru; and media campaigns by Costa Rica and Ecuador.

Mandatory policies for sodium reduction are in effect for an additional seven Member States that are in **score 3** — in particular, public food procurement and service policies (Argentina, Costa Rica, El Salvador, Peru, United States of America), marketing restrictions (Costa Rica, Ecuador, El Salvador, Peru), but less so front-of-pack labelling (Ecuador, Peru) or mandatory limits on sodium content in food (Argentina, Paraguay). In addition, Colombia has adopted front-of-pack labelling that will come into effect in December 2022, and the Plurinational State of Bolivia has adopted a law covering mandatory declaration of sodium, front-of-pack labelling, other mandatory labelling (menu labelling or warning messages) to indicate sodium content and marketing restrictions, which will come into effect when regulations are finalised. These will result in an uplift to score 3 for both countries.

Panama and the Bolivarian Republic of Venezuela both have mandatory public food procurement and service with an underlying nutrient profile model that includes sodium, while the Bolivarian Republic of Venezuela also has mandatory front-of-pack labelling. Neither country has mandatory sodium declaration on all pre-packaged food, whereas Canada, Guatemala, Honduras and Nicaragua have mandatory declaration of sodium on pre-packaged food but no other mandatory measure. A sodium declaration on all pre-packaged food plus a mandatory policy would have uplifted the score of these countries to 3.

Eleven Member States only have voluntary policies to reduce sodium and are in **score 2** — in particular, media campaigns (Antigua and Barbuda, Bolivarian Republic of Venezuela, Canada, Cuba, Guatemala, Jamaica, Saint Vincent and the Grenadines, Suriname) but also public food procurement and service (Barbados, Haiti), and reformulation (Canada, Colombia).

Another eleven Member States remain in **score 1**, only having a national policy commitment to reduce sodium intake (Annex 1). No information was available for Dominica.

Table 2. Sodium reduction policies and other measures implemented in the Region of the Americas

Score 1	Score 2	Score 3	Score 4
A national policy commitment	At least one voluntary policy	At least one mandatory policy + a declaration of sodium on pre-packaged food	At least two mandatory policies and all WHO sodium related best buys + a declaration of sodium on pre-packaged food
Bahamas, Belize, Dominican Republic, Grenada, Guyana, Honduras, Nicaragua, Panama, Saint Kitts and Nevis, Saint Lucia, Trinidad and Tobago	Antigua and Barbuda, Barbados, Canada, Colombia, Cuba, Guatemala, Haiti, Jamaica, Saint Vincent and the Grenadines, Suriname, Venezuela (Bolivarian Republic of)	Argentina, Costa Rica, Ecuador, El Salvador, Paraguay, Peru, United States of America	Brazil, Chile, Mexico, Uruguay
11	11	7	4

Sodium Country Score Cards: Eastern Mediterranean Region

In the Eastern Mediterranean Region (Table 3), Saudi Arabia is the first Member State to reach **score 4** and implement at least two mandatory policies for sodium reduction, namely reformulation (Box 2, page 17) and public food procurement and service policies, and all WHO sodium-related best buys for tackling noncommunicable diseases. In addition, Bahrain and the Islamic Republic of Iran have at least two mandatory measures, but do not implement all the best buys that would result in an uplift to score 4. Both implement reformulation, but Bahrain does not implement front-of-pack labelling and the Islamic Republic of Iran does not implement public food procurement and service policies; neither country has reported media campaigns.

Mandatory policies for sodium reduction are in effect for an additional three Member States, notably mandatory limits of sodium in food (Bahrain, the Islamic Republic of Iran), public food procurement and service policies (Bahrain, Qatar) and front-of-pack labelling (the Islamic Republic of Iran), achieving **score 3**. In addition, Iraq has mandatory limits on sodium in food products, Jordan has mandatory limits on sodium in food products and mandatory public food procurement and service with an underlying nutrient profile model that includes sodium, and Oman has mandatory limits on sodium in food products. None of these three countries have a mandatory declaration of sodium on all pre-packaged food, which would have resulted in an uplift to score 3. On the other hand, Kuwait and United Arab Emirates have mandatory declaration of sodium on pre-packaged food but no other mandatory measure that would result in an uplift to score 3.

The largest proportion of Eastern Mediterranean Region Member States (38%) are in **score 2**, with eight Member States only having voluntary policies to reduce sodium, including voluntary reformulation targets (Egypt, Kuwait, Tunisia), media campaigns (Iraq, Lebanon, Morocco) and front-of-pack labelling (United Arab Emirates).

Three Member States only have a national policy commitment to reduce sodium intake and are in **score 1** (Annex 1).

No information was available for six Member States; Libya, Pakistan, Somalia, Sudan, Syrian Arab Republic and Yemen.

Table 3. Sodium reduction policies and other measures implemented in the Eastern Mediterranean Region

Score 1	Score 2	Score 3	Score 4
A national policy commitment	At least one voluntary policy	At least one mandatory policy + a declaration of sodium on pre-packaged food	At least two mandatory policies and all WHO sodium related best buys + a declaration of sodium on pre-packaged food
Afghanistan, Djibouti, Jordan	Egypt, Iraq, Kuwait, Lebanon, Morocco, Oman, Tunisia, United Arab Emirates	Bahrain, Islamic Republic of Iran, Qatar	Saudi Arabia
3	8	3	1

Sodium Country Score Cards: European Region

In the European Region (Table 4) Czechia, Lithuania and Spain are the first three Member States to reach **score 4**. They have at least two mandatory measures implemented for sodium reduction, including mandatory declaration of sodium content on all pre-packaged food, and implementation of all WHO sodium-related best buys for tackling noncommunicable diseases. All three Member States implement mandatory public food procurement and service policies and marketing restrictions; Spain additionally has mandatory limits on sodium in food. In addition, Bulgaria, Greece, Hungary, Ireland, Israel, Latvia, Malta, Portugal and Türkiye have at least two mandatory measures, but do not implement all the best buys, which would results in an uplift to score 4 - in particular, front-of-pack labelling (only implemented in Israel, which is the only Member State without reformulation policies) and media campaigns (not implemented by Hungary, Israel, Portugal and Republic of Türkiye),

The largest proportion of European Region Member States (47%) are in **score 3**, with mandatory policies for sodium reduction are in effect in 25 Member States — in particular, mandatory limits on sodium in food (Austria, Belarus, Belgium, Bulgaria, Croatia, Greece, Hungary, Latvia, Montenegro, Netherlands, Portugal, Serbia, Slovakia, Uzbekistan) and public food procurement and service policies (Bulgaria, Estonia, France, Greece, Hungary, Ireland, Israel, Latvia, Malta, Poland, Romania, Türkiye, Ukraine, United Kingdom). European Member States also implemented mandatory marketing restrictions (Ireland, Malta, Portugal, Türkiye), front-of-pack labelling (Israel) and other interpretive labelling (Finland), as well as taxation on food high in sodium (Hungary, Box 16 page 32). Furthermore, another 16 Member States (Albania, Bosnia and Herzegovina, Cyprus, San Marino, Denmark, Georgia, Germany, Iceland, Italy, Luxembourg, North Macedonia, Norway, Republic of Moldova, Slovenia, Sweden and Switzerland) have mandatory declaration of sodium on pre-packaged food but no other mandatory measure that would result in an uplift to score 3.

Seventeen Member States only have voluntary policies to reduce sodium and remain in **score 2** — in particular, front-of-pack labelling (Denmark, Germany, Iceland, Italy, Luxembourg, Norway, Russian Federation, Slovenia, Sweden, Switzerland), voluntary reformulation targets (Azerbaijan, Denmark, Germany, Italy, Norway, Slovenia, Sweden, Switzerland) and media campaigns (Bosnia and Herzegovina, Denmark, Georgia, Iceland, Kazakhstan, North Macedonia, Norway, Republic of Moldova, Turkmenistan), but also public food procurement and service policies (Iceland, Republic of Moldova, Sweden, Switzerland) and marketing restrictions (Denmark, Iceland, Slovenia). Boxes 10 (page 26) and 12 (page 28) describe a voluntary front-of-pack labelling system in France and a media campaign in Kazakhstan, respectively.

Six Member States have only a national policy commitment to reduce sodium intake and therefore remain in **score 1**, whereas in the remaining two Member States (Andorra and Monaco) there has either been no action to reduce sodium intake or the status is unknown (Annex 1).

Table 4. Sodium reduction policies and other measures implemented in the European Region

Score 1	Score 2	Score 3	Score 4
A national policy commitment	At least one voluntary policy	At least one mandatory policy + a declaration of sodium on pre-packaged food	At least two mandatory policies and all WHO sodium related best buys+ a declaration of sodium on pre-packaged food
Albania, Armenia, Cyprus, Kyrgyzstan, San Marino, Tajikistan	Azerbaijan, Bosnia and Herzegovina, Denmark, Georgia, Germany, Iceland, Italy, Kazakhstan, Luxembourg, North Macedonia, Norway, Republic of Moldova, Russian Federation, Slovenia, Sweden, Switzerland, Turkmenistan	Austria, Belarus, Belgium, Bulgaria, Croatia, Estonia, Finland, France, Greece, Hungary, Ireland, Israel, Latvia, Malta, Montenegro, Netherlands, Poland, Portugal, Romania, Serbia, Slovakia, Türkiye, Ukraine, United Kingdom, Uzbekistan	Czechia, Lithuania, Spain
6	17	25	3

Sodium Country Score Cards: South-East Asia Region

In the South-East Asia Region (Table 5), no Member State has reached **score 4**. Indonesia, Sri Lanka, and Thailand have implemented mandatory policies for sodium reduction as well as mandatory declaration of sodium on pre-packaged food, and so have reached **score 3**. Sri Lanka and Thailand have mandatory front-of-pack labelling whereas Indonesia has other interpretive labelling. In addition, Bangladesh and India have mandatory declaration of sodium on pre-packaged food but no other mandatory measure and so remain in score 2.

The other Member States in **score 2** have only voluntary policies to reduce sodium, including media campaigns (Bhutan, Democratic People's Republic of Korea, India, Timor-Leste) and voluntary reformulation (Bangladesh).

Three Member States are in **score 1**, having only a national policy commitment to reduce sodium intake (Annex 1).

Table 5. Sodium reduction policies and other measures implemented in the South-East Asian Region

Score 1	Score 2	Score 3	Score 4
A national policy commitment	At least one voluntary policy	At least one mandatory policy + a declaration of sodium on pre-packaged food	At least two mandatory policies and all WHO sodium related best buys + a declaration of sodium on pre-packaged food
Maldives, Myanmar, Nepal	Bangladesh, Bhutan, Democratic People's Republic of Korea, India, Timor-Leste	Indonesia, Sri Lanka, Thailand	
3	5	3	0

Sodium Country Score Cards: Western Pacific Region

In the Western Pacific Region (Table 6), Malaysia is the first Member State to reach **score 4**. It has at least two mandatory measures implemented for sodium reduction, notably limits on sodium in food and public food procurement and service policies, as well as mandatory declaration of sodium content on all pre-packaged food, and it has implemented all WHO sodium-related best buys for tackling noncommunicable diseases. In addition, Kiribati, Philippines, and the Republic of Korea have at least two mandatory measures, but do not implement all the best buys which would result in an uplift to score 4.

Kiribati, Mongolia, Philippines, and Republic of Korea have implemented mandatory policies for sodium reduction alongside mandatory declaration of sodium on pre-packaged food and have therefore reached **score 3**, policies implemented include public food procurement and service policies (all four Member States), marketing restrictions (Philippines, Republic of Korea), a limit on sodium in food (Kiribati) and front-of-pack labelling (Republic of Korea). Box 14 (page 31) describes the mandatory marketing restrictions in the Republic of Korea. In addition, Brunei Darussalam has mandatory public food procurement and service with an underlying nutrient profile model that includes sodium but does not have a mandatory sodium declaration of sodium on all pre-packaged food. Australia, China, Fiji, Japan, New Zealand, and Samoa have mandatory declaration of sodium on pre-packaged food but no other mandatory measure, all of which would result in an uplift to score 3.

The largest proportion of Western Pacific Region Member States (41%) are in **score 2**, with 13 Member States having implemented voluntary policies only, voluntary reformulation targets (Australia, Brunei Darussalam, Fiji, New Zealand, Singapore, Vanuatu), public food procurement and service policies (Australia, Brunei Darussalam, China, New Zealand, Singapore), and front-of-pack labelling (Australia, Brunei Darussalam, New Zealand, Singapore), but also other interpretive nutrition labelling (China) and marketing restrictions (Brunei Darussalam). Boxes 3 (page 17), 9 (page 26) and 11 (page 28) describe voluntary approaches to reformulation in Australia, front-of-pack labelling in Australia and New Zealand, and a media campaign in China, respectively.

Seven Member States are in **score 1** with only a national policy commitment to reduce sodium intake, while no information was available for Marshall Islands or Niue (Annex 1).

Table 6. Sodium reduction policies and other measures implemented in the Western Pacific Region

Score 1	Score 2	Score 3	Score 4
A national policy commitment	At least one voluntary policy	At least one mandatory policy + a declaration of sodium on pre-packaged food	At least two mandatory policies and all WHO sodium related best buys + a declaration of sodium on pre-packaged food
Cook Islands, Lao People's Democratic Republic, Nauru, Palau, Papua New Guinea, Solomon Islands, Tonga	Australia, Brunei Darussalam, Cambodia, China, Fiji, Japan, Micronesia (Federated States of), New Zealand, Samoa, Singapore, Tuvalu, Vanuatu, Viet Nam	Kiribati, Mongolia, Philippines, Republic of Korea	Malaysia
7	13	4	1

Population dietary sodium intake

In 2019, the mean global sodium intake of adults was estimated at 4310 mg/day (10.78 g/day salt) which is more than double the WHO recommendation. Country sodium intake ranges from the lowest reported at 2006 mg/day sodium (5 g/day salt) to the highest at 6950 mg/day sodium (17.38 g/day salt) (Annex 1).

WHO regional sodium estimates range from 2687 mg/day (6.2 g/day salt) in the African Region to 6247 mg/day (15.6 g/day salt) in the Western Pacific Region (Table 7).

Based on the trends 2010–2019, sodium intake will reduce minimally. Since several countries have improved their policies in the last four years, however, some further reduction may be seen[3].

Table 7. Estimated mean population dietary sodium intake in 2019 and projected mean population dietary sodium intake in 2025 and 2030 by WHO regions

WHO region	2019		2025		2030	
	mg/day sodium	g/day salt	mg/day sodium	g/day salt	mg/day sodium	g/day salt
African	2687	6.72	2680	6.70	2674	6.69
Americas	3583	8.96	3574	8.94	3564	8.91
Eastern Mediterranean	2792	6.98	2800	7.00	2798	6.99
European	3445	8.61	3437	8.59	3430	8.57
South-East Asia	3921	9.80	3907	9.77	3896	9.74
Western Pacific*	6247	15.62	6189	15.47	6137	15.34
Global intake	4310	10.78	4230	10.58	4163	10.41
WHO's recommendation	<2000	<5.0	<2000	<5.0	<2000	<5.0

*The estimated intake for China is 6954 mg/day sodium, which is likely to be influencing the Western Pacific Region mean.

Sodium (Na) to salt (NaCl) conversion

1 mmol sodium / 17 = 1 gram salt

1 mEq sodium / 17 = 1 gram salt

1 gram sodium * 2.5 = 1 gram salt

5 g salt = 2000 mg sodium = 87 mmol sodium = 87 mEq sodium

[3] As described in the methods, baseline year of 2019 represents the year of the latest available sodium intake estimates. The Sodium Country Score Card was therefore adjusted to reflect status in 2019. In the period 2019–2022, three Member States had advanced two scores (Ukraine from score 1 to score 3, and Malaysia and Spain from score 2 to score 4) and eight Member States had advanced one score (Algeria, China and Luxembourg from score 1 to score 2, Finland, Indonesia and Mongolia from score 2 to score 3, and Brazil and Mexico from score 3 to score 4).

Modelled health impact of sodium reduction policies

Impact of policy on sodium intake

Modelling the effect of two-score lifts in WHO Member States from 2019 to 2025 and 2030, globally, an estimated mean population sodium reduction of 584 mg/day sodium (1.5 g/day salt) and 1010 mg/day sodium (2.6 g/day salt) could be achieved, respectively. By 2030, this equates to a 23.4% reduction in mean population sodium intake.

WHO regional reductions range from 18.6% in the Eastern Mediterranean Region to 25.3% in the European Region, by 2030 (Table 8).

Table 8. Modelled mean population sodium reduction (absolute and relative) as a result of score uplifts, by WHO region, at year 2025 and 2030

WHO region	2019			2025			2030		
	mg/day sodium	g/day salt	%	mg/day sodium	g/day salt	%	mg/day sodium	g/day salt	%
Africa	294	0.7	10.9	514	1.3	19.1			
Americas	503	1.3	14.0	870	2.2	24.3			
Eastern Mediterranean	296	0.8	10.6	520	1.3	18.6			
European	505	1.3	14.7	870	2.2	25.3			
South-East Asia	484	1.2	12.4	841	2.1	21.4			
Western Pacific	743	1.9	11.9	1298	3.3	20.8			
Global	584	1.5	13.6	1010	2.6	23.4			

Impact of policy on cardiovascular disease

Globally, an estimated 2.2 million and 7 million cardiovascular disease deaths could be averted by 2025 and 2030, respectively, if countries achieved a two-score lift. This equates to a 3.1% reduction in cardiovascular death, globally, by 2030.

WHO regional cardiovascular disease deaths averted range from 1.6% in the Eastern Mediterranean Region to 4.4% in the Western Pacific Region, by 2030 (Table 9).

Table 9. Number and proportion of cardiovascular deaths averted by WHO region, at year 2025 and 2030

WHO region	2025		2030	
	Cardiovascular aggregated deaths averted (millions)	%	Cardiovascular aggregated deaths averted (millions)	%
Africa	0.087	1.3	0.278	2.3
Americas	0.199	1.4	0.628	2.5
Eastern Mediterranean	0.086	0.9	0.275	1.6
European	0.293	1.1	0.903	1.9
South-East Asia	0.507	1.8	1.620	3.1
Western Pacific	1.022	2.5	3.242	4.4
Global	2.194	1.7	6.946	3.1

Thirteen Member States: Andorra, Cook Islands, Democratic People's Republic of Korea, Democratic Republic of the Congo, Dominica, Marshall Islands, Monaco, Nauru, Niue, Palau, Saint Lucia, San Marino and Tuvalu did not have all the parameters available to compute the corresponding cardiovascular deaths averted. Three Member States: Czechia, Lithuania and Saudi Arabia were already in the maximum level of the score 4 so did not benefit from the uplifted scenario.

THE WAY FORWARD

THE WAY FORWARD

Globally, most populations far exceed the WHO recommended sodium intake of <2000 mg/day. Sodium reduction policies and other measures have the potential to significantly improve diets and reduce the burden of diet-related noncommunicable diseases, at a very low cost.

In 2022, 5% of Member States have implemented at least two mandatory sodium reduction policies and all WHO sodium-related best buys for tackling noncommunicable diseases (score 4), notably six high-income and three upper-middle-income countries. A further 22% of Member States have implemented at least one mandatory policy (score 3). This means that 26% of the world's population live in countries with mandatory measures towards sodium reduction, including mandatory declaration of sodium. At the same time, 33% of the remaining Member States have implemented at least one voluntary measure to reduce sodium intake (score 2), while 29% have made a policy commitment towards sodium reduction (score 1).

Modelling indicates the estimated impact of policy implementation on sodium intake to be a 23.4% reduction, and on cardiovascular death a 3.1% reduction, globally, by 2030. This impact is based on Member States uplifting two scores in the Sodium Country Score Card. For example, in 2019, Member States that had a policy commitment (score 1) or national strategy for sodium reduction will have implemented, at a minimum, mandatory reformulation and mandatory declaration of sodium by 2030 (score 3).

While the modelled global sodium reduction is below the 30% target by 2025, achieving the target can still be considered attainable by 2030 – at the end of the SDG. The modelling in this report is considered to apply a conservative and feasible approach, as demonstrated by several Member States uplifting their Sodium Country Scores in the 3-year period between 2019 and 2022.

Within and across all four scores in the Sodium Country Score Card, there is considerable scope and potential to develop new, and strengthen existing, policies — for example, by expanding the number of food categories with reformulation limits or targets, or by expanding the number of public settings where food high in sodium is not to be served or sold. This is also highlighted through the case studies that showcase the country-specific policies and opportunities for further legislation. It is, however, important to note the current disparities in policy implementation when reviewed by World Bank income group, and the importance of supporting all countries to achieve the highest Sodium Country Score. It is anticipated that with an urgent, focused and context-specific strategy, there remains time to achieve the sodium reduction target and improve the health of all populations.

To achieve the target, strong government leadership and commitment is urgently required to rapidly adopt, implement and monitor government-led and comprehensive mandatory sodium reduction legislation. A mandatory approach safeguards against commercial interests that often attempt to delay, weaken, distort and/or impede the development of food and nutrition policies and programmes.

Recommended policy and other measures include:

- **Maximum sodium content limits in foods**. Given countries' experiences and the slow progress toward implementing and/or meeting voluntary targets to reduce sodium content in pre-packaged foods, mandatory approaches are recommended. WHO has established global benchmarks for sodium levels in foods across different food categories. The setting of global sodium benchmarks is critical to facilitate reformulation of food products, which contributes to driving progress in sodium reduction.

- **Healthy public food procurement and service policies.** Governments worldwide have an opportunity and responsibility to lead by example through the implementation of mandatory policies that cover food and beverages purchased, subsidized, prepared, served and sold in public agencies, ensuring that the core principles of a healthy diet outlined in the WHO action framework are followed.

- **Nutrition labelling.** Nutrition labelling on packaged foods is inconsistent and often misleading. Enabling consumers to make healthier dietary decisions requires creating a food environment that provides accurate and clear information. Mandatory nutrition labelling policies and other measures can enable consumers to make an informed selection of manufactured products at the point of purchase. Nutrition labelling policies and other measures can prevent labelling that is false, misleading or deceptive, or is likely to create an incorrect view about any characteristics of the product. Mandatory labelling policies should also include nutrient declarations, including sodium, on the back of the package, as well as clear and simple interpretive front-of-pack labelling schemes to indicate products that do not meet basic nutritional criteria.

- **Marketing restrictions.** The effects of powerful and unethical marketing of foods and non-alcoholic beverages high in fats, sugars and/or sodium are widespread and increasing. Implementing mandatory marketing restrictions is needed to limit exposure to unhealthy foods and beverages, to decrease demand for these products, and to provide industry incentive to reformulate and market healthier products.

- **Fiscal policies.** There is growing evidence for the triple-win impact of fiscal measures: they can promote healthy foods, discourage the purchase of unhealthy food products, and boost revenue for government budgets. Fiscal policies to reduce population sodium intake include taxes on unhealthy foods and beverages, or removing tax benefits for the development and marketing of foods high in sodium. They can be strengthened by earmarking revenue for subsidies for fresh fruits and vegetables, or for implementation of other sodium reduction strategies.

There are opportunities for action to further accelerate action to reduce sodium intake, including the following:

- **Prioritisation.** There is a growing sense of urgency and political awareness of the economic and societal impact of diets high in sodium on communities and countries. All Member States have committed to achieving a 30% relative reduction in mean population sodium intake by 2030, demonstrating strong consensus on sodium reduction as a life-saving strategy to reduce cardiovascular death and disease. Further action, however, is required to increase the demand for change, drive societal shift, catalyse response, and influence policy and decision-makers to prioritize mandatory legislation.

- **Data.** Data drives economies and government priorities. Without current and robust data, decision-making, including resource allocation, is hindered. New solutions are needed to implement rapid, feasible, affordable, and accurate methods of assessing mean population sodium intake, sources of dietary sodium, and sodium content in manufactured foods. Regular reporting of data on sodium content in foods, and global access to such data, are needed to develop, monitor and evaluate sodium reduction policies and other measures. An improved understanding of the barriers and enablers to the implementation of current sodium reduction policies and other measures could guide the development of more effective and impactful sodium reduction programmes.

- **Research and Innovation.** Given how far the world currently is from achieving the 30% reduction in sodium intake, it is likely that new and innovative measures will be needed. For example, countries may explore ways to increase the availability and use of potassium enriched low-sodium salt substitutes, particularly in populations that consume much of their sodium intake from salt added to food in cooking and/or at the table.

- **Partnerships.** Building a strong coalition of partners and champions is key to a successful sodium reduction strategy. It is important to engage a wide range of stakeholders in developing and implementing policies. For example, civil society can mobilize resources, drive communication activities, and build public and policy-maker support for sodium reduction policies. They can also support the monitoring of industry action, and oppose and challenge commercially driven practices. Academic institutions are important to generate evidence for policies, and engage in monitoring and evaluating activities.

WHO will support Member States in their efforts to adopt, implement and monitor mandatory sodium reduction legislation. WHO will also continue to monitor progress in doing so around the world, by not only updating the Sodium Country Score Card and periodically publishing global sodium reduction reports, but also refining the algorithms, assumptions and methods used in these activities as new evidence and guidance become available.

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ANNEXES

ANNEX 1

Sodium intake and Sodium Country Score Card assessment

Country	WHO region	WB income	mg/d sodium	g/d salt	Sodium Country Score
Afghanistan	EMR	LIC	2538 (2377 - 2717)	6.4	1
Albania	EUR	UMC	5054 (4798 - 5333)	12.8	1
Algeria	AFR	LMC	2479 (2337 - 2631)	6.3	2
Andorra	EUR	HIC	3020 (2860 - 3180)	7.7	Missing data
Angola	AFR	LMC	2812 (2643 - 2997)	7.1	Missing data
Antigua and Barbuda	AMR	HIC	2867 (2713 - 3030)	7.3	2
Argentina	AMR	UMC	3630 (3457 - 3798)	9.2	3
Armenia	EUR	UMC	3467 (3285 - 3647)	8.8	1
Australia	WPR	HIC	2920 (2768 - 3070)	7.4	2
Austria	EUR	HIC	3386 (3221 - 3556)	8.6	3
Azerbaijan	EUR	UMC	3518 (3315 - 3745)	8.9	2
Bahamas	AMR	HIC	2863 (2713 - 3016)	7.3	1
Bahrain	EMR	HIC	2590 (2391 - 2795)	6.6	3
Bangladesh	SEAR	LMC	3497 (3293 - 3690)	8.9	2
Barbados	AMR	HIC	2672 (2551 - 2800)	6.8	2
Belarus	EUR	UMC	2755 (2607 - 2897)	7	3
Belgium	EUR	HIC	3285 (3129 - 3437)	8.3	3
Belize	AMR	UMC	2866 (2711 - 3033)	7.3	1
Benin	AFR	LMC	2922 (2748 - 3113)	7.4	1
Bhutan	SEAR	LMC	3516 (3317 - 3750)	8.9	2
Bolivia (Plurinational State of)	AMR	LMC	3568 (3376 - 3769)	9.1	No score
Bosnia and Herzegovina	EUR	UMC	5050 (4799 - 5291)	12.8	2
Botswana	AFR	UMC	3026 (2846 - 3214)	7.7	Missing data

National policy commitment	Voluntary measures						Mandatory measures						Notes
	Reformulation	Public food procurement and service	Front-of-pack labelling	Other interpretive nutrition labelling	Marketing restrictions	Media campaign	Declaration of sodium content	Reformulation	Public food procurement and service	Front-of-pack labelling	Other interpretive nutrition labelling	Marketing restrictions	Fiscal	
x														
x							x							Mandatory declaration of sodium on pre-packaged food, but no other mandatory measures to bring country to score 3 or 4
x						x	x							Mandatory declaration of sodium on pre-packaged food, but no other mandatory measures to bring country to score 3 or 4
x						x								
x						x	x	x	x		x			Mandatory measure for sodium reduction adopted (to bring country to score 4) not yet in effect
x														
x	x	x	x			x	x							Mandatory declaration of sodium on pre-packaged food, but no other mandatory measures to bring country to score 3 or 4
	x						x	x						
x	x					x								
x														
x						x	x	x	x					Multiple mandatory measures exist but does not implement all WHO sodium-related best buys
x	x						x							Mandatory declaration of sodium on pre-packaged food, but no other mandatory measures to bring country to score 3 or 4
x		x												
x						x	x	x						
		x	x			x	x	x						
x														
x														
x						x								
														Mandatory measure for sodium reduction adopted (to bring country to score 3) not yet in effect
x						x	x							Mandatory declaration of sodium on pre-packaged food, but no other mandatory measures to bring country to score 3 or 4

Country	WHO region	WB income	mg/d sodium	g/d salt	Sodium Country Score
Brazil	AMR	UMC	3546 (3344 - 3743)	9	4
Brunei Darussalam	WPR	HIC	4473 (4212 - 4773)	11.4	2
Bulgaria	EUR	UMC	5087 (4836 - 5350)	12.9	3
Burkina Faso	AFR	LIC	2701 (2544 - 2862)	6.9	1
Burundi	AFR	LIC	2801 (2647 - 2966)	7.1	1
Cambodia	WPR	LMC	4079 (3 851 - 4 312)	10.4	2
Cameroon	AFR	LMC	2705 (2543 - 2887)	6.9	Missing data
Canada	AMR	HIC	3575 (3 424 - 3 734)	9.1	2
Cabo Verde	AFR	LMC	2731 (2575 - 2899)	6.9	2
Central African Republic	AFR	LIC	2804 (2638 - 2982)	7.1	1
Chad	AFR	LIC	2708 (2543 - 2877)	6.9	1
Chile	AMR	HIC	3708 (3529 - 3901)	9.4	4
China	WPR	UMC	6954 (6601 - 7321)	17.7	2
Colombia	AMR	UMC	4716 (4488 - 4987)	12	2
Comoros	AFR	LMC	2897 (2750 - 3045)	7.4	2
Congo	AFR	LMC	2799 (2636 - 2976)	7.1	Missing data
Cook Islands	WPR	ND	3200 (3044 - 3365)	8.1	1
Costa Rica	AMR	UMC	4006 (3778 - 4227)	10.2	3
Côte d'Ivoire	AFR	LMC	2882 (2703 - 3069)	7.3	1
Croatia	EUR	HIC	5077 (4833 - 5307)	12.9	3
Cuba	AMR	UMC	2890 (2748 - 3051)	7.3	2
Cyprus	EUR	HIC	3350 (3175 - 3526)	8.5	1
Czechia	EUR	HIC	5112 (4 856 - 5387)	13	4
Democratic People's Republic of Korea	SEAR	LIC	4997 (4 721 - 5269)	12.7	2
Democratic Republic of the Congo	AFR	LIC	2236 (2098 - 2383)	5.7	Missing data

National policy commitment	Voluntary measures						Mandatory measures						Notes
	Reformulation	Public food procurement and service	Front-of-pack labelling	Other interpretive nutrition labelling	Marketing restrictions	Media campaign	Declaration of sodium content	Reformulation	Public food procurement and service	Front-of-pack labelling	Other interpretive nutrition labelling	Marketing restrictions	Fiscal	
x	x					x	x		x	x		x		
x	x	x	x		x	x			x					Mandatory measures exist, but no mandatory declaration of sodium on pre-packaged food
x						x	x	x	x					Multiple mandatory measures exist but does not implement all WHO sodium-related best buys
x														
x														
x						x								
x	x					x	x							Mandatory declaration of sodium on pre-packaged food, but no other mandatory measures to bring country to score 3 or 4
x						x			x			x		Mandatory measures exist, but no mandatory declaration of sodium on pre-packaged food
x														
x														
x	x					x	x		x	x		x		
x		x		x		x	x							Mandatory declaration of sodium on pre-packaged food, but no other mandatory measures to bring country to score 3 or 4
x	x					x			x			x		Mandatory measure for sodium reduction adopted (to bring country to score 3) not yet in effect
						x								
x														
x	x					x	x		x			x		Multiple mandatory measures exist but does not implement all WHO sodium-related best buys
x														
x			x			x	x	x						
x						x								
x							x							Mandatory declaration of sodium on pre-packaged food, but no other mandatory measures to bring country to score 3 or 4
x	x		x			x	x		x			x		
x						x								

Country	WHO region	WB income	mg/d sodium	g/d salt	Sodium Country Score
Denmark	EUR	HIC	3242 (3089 - 3409)	8.2	2
Djibouti	EMR	LMC	2800 (2637 - 2956)	7.1	1
Dominica	AMR	UMC	2889 (2735 - 3043)	7.3	Missing data
Dominican Republic	AMR	UMC	2875 (2720 - 3042)	7.3	1
Ecuador	AMR	UMC	3562 (3378 - 3763)	9	3
Egypt	EMR	LMC	2508 (2352 - 2673)	6.4	2
El Salvador	AMR	LMC	3974 (3772 - 4187)	10.1	3
Equatorial Guinea	AFR	UMC	2843 (2649 - 3045)	7.2	Missing data
Eritrea	AFR	LIC	2791 (2633 - 2955)	7.1	2
Estonia	EUR	HIC	2259 (2154 - 2368)	5.7	3
Eswatini	AFR	LMC	3023 (2828 - 3224)	7.7	1
Ethiopia	AFR	LIC	2800 (2647 - 2973)	7.1	1
Fiji	WPR	UMC	2917 (2770 - 3069)	7.4	2
Finland	EUR	HIC	3291 (3137 - 3450)	8.4	3
France	EUR	HIC	2976 (2838 - 3120)	7.6	3
Gabon	AFR	UMC	2791 (2629 - 2954)	7.1	1
Gambia	AFR	LIC	2698 (2542 - 2878)	6.9	2
Georgia	EUR	UMC	3475 (3304 - 3661)	8.8	2
Germany	EUR	HIC	3410 (3242 - 3579)	8.7	2
Ghana	AFR	LMC	3214 (3033 - 3402)	8.2	1
Greece	EUR	HIC	3267 (3119 - 3427)	8.3	3
Grenada	AMR	UMC	2878 (2736 - 3041)	7.3	1
Guatemala	AMR	UMC	4028 (3804 - 4281)	10.2	2
Guinea	AFR	LIC	2703 (2542 - 2866)	6.9	2

National policy commitment	Voluntary measures						Mandatory measures							Notes
	Reformulation	Public food procurement and service	Front-of-pack labelling	Other interpretive nutrition labelling	Marketing restrictions	Media campaign	Declaration of sodium content	Reformulation	Public food procurement and service	Front-of-pack labelling	Other interpretive nutrition labelling	Marketing restrictions	Fiscal	
	x		x		x	x	x							Mandatory declaration of sodium on pre-packaged food, but no other mandatory measures to bring country to score 3 or 4
x														
x														
						x	x			x		x		Multiple mandatory measures exist but does not implement all WHO sodium-related best buys
x	x													
x							x		x			x		Multiple mandatory measures exist but does not implement all WHO sodium-related best buys
x						x								
x	x					x	x		x					
x														
x														
x	x					x	x							Mandatory declaration of sodium on pre-packaged food, but no other mandatory measures to bring country to score 3 or 4
x		x	x			x	x				x			
x	x		x				x		x					
x														
						x								
						x	x							Mandatory declaration of sodium on pre-packaged food, but no other mandatory measures to bring country to score 3 or 4
	x		x			x	x							Mandatory declaration of sodium on pre-packaged food, but no other mandatory measures to bring country to score 3 or 4
x														
x	x					x	x	x	x					Multiple mandatory measures exist but does not implement all WHO sodium-related best buys
x														
x						x	x							Mandatory declaration of sodium on pre-packaged food, but no other mandatory measures to bring country to score 3 or 4
x						x								

Country	WHO region	WB income	mg/d sodium	g/d salt	Sodium Country Score
Guinea-Bissau	AFR	LIC	2689 (2534 - 2870)	6.8	Missing data
Guyana	AMR	UMC	2862 (2713 - 3028)	7.3	1
Haiti	AMR	LMC	2848 (2667 - 3026)	7.2	2
Honduras	AMR	LMC	4038 (3804 - 4287)	10.3	1
Hungary	EUR	HIC	5646 (5370 - 5918)	14.3	3
Iceland	EUR	HIC	3317 (3152 - 3474)	8.4	2
India	SEAR	LMC	3873 (3831 - 3917)	9.8	2
Indonesia	SEAR	LMC	4143 (3926 - 4373)	10.5	3
Iran (Islamic Republic of)	EMR	LMC	2486 (2340 - 2641)	6.3	3
Iraq	EMR	UMC	2520 (2357 - 2707)	6.4	2
Ireland	EUR	HIC	2887 (2742 - 3034)	7.3	3
Israel	EUR	HIC	3343 (3171 - 3519)	8.5	3
Italy	EUR	HIC	3810 (3625 - 3997)	9.7	2
Jamaica	AMR	UMC	2874 (2709 - 3027)	7.3	2
Japan	WPR	HIC	4027 (3954 - 4107)	10.2	2
Jordan	EMR	UMC	2535 (2378 - 2722)	6.4	1
Kazakhstan	EUR	UMC	3509 (3324 - 3716)	8.9	2
Kenya	AFR	LMC	2397 (2268 - 2528)	6.1	1
Kiribati	WPR	LMC	2814 (2655 - 2975)	7.1	3
Kuwait	EMR	HIC	3277 (3096 - 3490)	8.3	2

National policy commitment	Voluntary measures						Mandatory measures							Notes
	Reformulation	Public food procurement and service	Front-of-pack labelling	Other interpretive nutrition labelling	Marketing restrictions	Media campaign	Declaration of sodium content	Reformulation	Public food procurement and service	Front-of-pack labelling	Other interpretive nutrition labelling	Marketing restrictions	Fiscal	
x														
		x												
x							x							Mandatory declaration of sodium on pre-packaged food, but no other mandatory measures to bring country to score 3 or 4
x						x	x	x	x				x	Multiple mandatory measures exist but does not implement all WHO sodium-related best buys
x		x	x		x	x	x							Mandatory declaration of sodium on pre-packaged food, but no other mandatory measures to bring country to score 3 or 4
x						x	x							Mandatory declaration of sodium on pre-packaged food, but no other mandatory measures to bring country to score 3 or 4
x			x			x	x				x			
x						x	x	x		x				Multiple mandatory measures exist but does not implement all WHO sodium-related best buys
x						x		x						Mandatory measures exist, but no mandatory declaration of sodium on pre-packaged food
x	x					x	x		x			x		Multiple mandatory measures exist but does not implement all WHO sodium-related best buys
x						x	x		x	x				Multiple mandatory measures exist but does not implement all WHO sodium-related best buys
x	x		x			x	x							Mandatory declaration of sodium on pre-packaged food, but no other mandatory measures to bring country to score 3 or 4
x						x								
x						x	x							Mandatory declaration of sodium on pre-packaged food, but no other mandatory measures to bring country to score 3 or 4
x								x	x					Mandatory measures exist, but no mandatory declaration of sodium on pre-packaged food
						x								
x														
							x	x	x					Multiple mandatory measures exist but does not implement all WHO sodium-related best buys
x	x						x							Mandatory declaration of sodium on pre-packaged food, but no other mandatory measures to bring country to score 3 or 4

Country	WHO region	WB income	mg/d sodium	g/d salt	Sodium Country Score
Kyrgyzstan	EUR	LMC	3533 (3321 - 3744)	9	1
Lao People's Democratic Republic	WPR	LMC	4072 (3849 - 4314)	10.3	1
Latvia	EUR	HIC	2975 (2830 - 3127)	7.6	3
Lebanon	EMR	LMC	2435 (2293 - 2586)	6.2	2
Lesotho	AFR	LMC	3017 (2839 - 3222)	7.7	1
Liberia	AFR	LIC	2701 (2545 - 2863)	6.9	Missing data
Libya	EMR	UMC	2493 (2343 - 2663)	6.3	Missing data
Lithuania	EUR	HIC	2927 (2794 - 3085)	7.4	4
Luxembourg	EUR	HIC	3347 (3171 - 3528)	8.5	2
Madagascar	AFR	LIC	2817 (2669 - 2975)	7.2	2
Malawi	AFR	LIC	2819 (2668 - 2978)	7.2	Missing data
Malaysia	WPR	UMC	4134 (3911 - 4394)	10.5	4
Maldives	SEAR	UMC	4054 (3797 - 4345)	10.3	1
Mali	AFR	LIC	2709 (2551 - 2878)	6.9	1
Malta	EUR	HIC	3797 (3623 - 3982)	9.6	3
Marshall Islands	WPR	UMC	2813 (2663 - 2988)	7.1	Missing data
Mauritania	AFR	LMC	2721 (2565 - 2870)	6.9	2
Mauritius	AFR	UMC	4254 (4037 - 4475)	10.8	1
Mexico	AMR	UMC	3452 (3280 - 3632)	8.8	4
Micronesia (Federated States of)	WPR	LMC	2894 (2741 - 3059)	7.4	2
Monaco	EUR	HIC	3235 (3080 - 3395)	8.2	Missing data
Mongolia	WPR	LMC	3560 (3361 - 3781)	9	3
Montenegro	EUR	UMC	5040 (4782 - 5310)	12.8	3
Morocco	EMR	LMC	2447 (2309 - 2593)	6.2	2
Mozambique	AFR	LIC	2831 (2679 - 2985)	7.2	1
Myanmar	SEAR	LMC	4132 (3929 - 4355)	10.5	1
Namibia	AFR	UMC	3013 (2832 - 3203)	7.7	1
Nauru	WPR	HIC	2677 (2524 - 2841)	6.8	1
Nepal	SEAR	LMC	3493 (3298 - 3693)	8.9	1

National policy commitment	Voluntary measures						Mandatory measures							Notes
	Reformulation	Public food procurement and service	Front-of-pack labelling	Other interpretive nutrition labelling	Marketing restrictions	Media campaign	Declaration of sodium content	Reformulation	Public food procurement and service	Front-of-pack labelling	Other interpretive nutrition labelling	Marketing restrictions	Fiscal	
X														
X														
X						X	X	X	X					Multiple mandatory measures exist but does not implement all WHO sodium-related best buys
X						X								
X														
X	X		X			X	X		X			X		
X			X				X							Mandatory declaration of sodium on pre-packaged food, but no other mandatory measures to bring country to score 3 or 4
X						X								
X			X	X		X	X	X	X					
X														
X														
X	X					X	X		X			X		Multiple mandatory measures exist but does not implement all WHO sodium-related best buys
X						X								
X								X						Mandatory measures exist, but no mandatory declaration of sodium on pre-packaged food
X	X					X	X		X	X				
X						X								
X			X			X	X		X					
X						X	X	X						
X						X								
X														
X														
X														
X														
X														

Country	WHO region	WB income	mg/d sodium	g/d salt	Sodium Country Score
Netherlands	EUR	HIC	3239 (3090 - 3399)	8.2	3
New Zealand	WPR	HIC	3146 (3024 - 3271)	8	2
Nicaragua	AMR	LMC	4035 (3801 - 4293)	10.2	1
Niger	AFR	LIC	2709 (2551 - 2885)	6.9	1
Nigeria	AFR	LMC	2524 (2376 - 2673)	6.4	1
Niue	WPR	ND	3145 (2985 - 3303)	8	Missing data
North Macedonia	EUR	UMC	5052 (4795 - 5312)	12.8	2
Norway	EUR	HIC	3055 (2942 - 3172)	7.8	2
Oman	EMR	HIC	2790 (2546 - 3043)	7.1	2
Pakistan	EMR	LMC	3511 (3302 - 3730)	8.9	Missing data
Palau	WPR	UMC	3026 (2875 - 3195)	7.7	1
Panama	AMR	HIC	4023 (3803 - 4235)	10.2	1
Papua New Guinea	WPR	LMC	2758 (2598 - 2913)	7	1
Paraguay	AMR	UMC	3570 (3370 - 3775)	9.1	3
Peru	AMR	UMC	3555 (3370 - 3757)	9	3
Philippines	WPR	LMC	4113 (3898 - 4344)	10.4	3
Poland	EUR	HIC	4357 (4142 - 4548)	11.1	3
Portugal	EUR	HIC	3512 (3344 - 3680)	8.9	3
Qatar	EMR	HIC	2848 (2597 - 3119)	7.2	3
Republic of Korea	WPR	HIC	4854 (4629 - 5070)	12.3	3

National policy commitment	Voluntary measures						Mandatory measures							Notes
	Reformulation	Public food procurement and service	Front-of-pack labelling	Other interpretive nutrition labelling	Marketing restrictions	Media campaign	Declaration of sodium content	Reformulation	Public food procurement and service	Front-of-pack labelling	Other interpretive nutrition labelling	Marketing restrictions	Fiscal	
x	x				x	x	x	x						
	x	x	x			x	x							Mandatory declaration of sodium on pre-packaged food, but no other mandatory measures to bring country to score 3 or 4
x							x							Mandatory declaration of sodium on pre-packaged food, but no other mandatory measures to bring country to score 3 or 4
x														
x														
x						x	x							Mandatory declaration of sodium on pre-packaged food, but no other mandatory measures to bring country to score 3 or 4
x	x		x			x	x							Mandatory declaration of sodium on pre-packaged food, but no other mandatory measures to bring country to score 3 or 4
x						x		x						Mandatory measures exist, but no mandatory declaration of sodium on pre-packaged food
x														
x									x			x		Mandatory measures exist, but no mandatory declaration of sodium on pre-packaged food
x														
x							x	x						
x							x		x	x		x		Multiple mandatory measures exist but does not implement all WHO sodium-related best buys
x						x	x		x			x		Multiple mandatory measures exist but does not implement all WHO sodium-related best buys
x			x		x	x	x		x					
x	x	x			x	x	x	x				x		Multiple mandatory measures exist but does not implement all WHO sodium-related best buys
x	x	x				x	x		x					
	x						x		x	x		x		Multiple mandatory measures exist but does not implement all WHO sodium-related best buys

Country	WHO region	WB income	mg/d sodium	g/d salt	Sodium Country Score
Republic of Moldova	EUR	UMC	2780 (2635 - 2932)	7.1	2
Romania	EUR	HIC	5075 (4821 - 5343)	12.9	3
Russian Federation	EUR	UMC	3801 (3622 - 3975)	9.7	2
Rwanda	AFR	LIC	2850 (2697 - 3021)	7.2	1
Saint Kitts and Nevis	AMR	HIC	2881 (2719 - 3054)	7.3	1
Saint Lucia	AMR	UMC	2881 (2735 - 3026)	7.3	1
Saint Vincent and the Grenadines	AMR	UMC	2889 (2730 - 3054)	7.3	2
Samoa	WPR	LMC	2006 (1897 - 2108)	5.1	2
San Marino	EUR	HIC	3276 (3128 - 3442)	8.3	1
Sao Tome and Principe	AFR	LMC	2712 (2556 - 2881)	6.9	1
Saudi Arabia	EMR	HIC	2625 (2434 - 2835)	6.7	4
Senegal	AFR	LMC	2718 (2572 - 2877)	6.9	2
Serbia	EUR	UMC	5072 (4822 - 5348)	12.9	3
Seychelles	AFR	HIC	2934 (2787 - 3089)	7.5	3
Sierra Leone	AFR	LIC	2705 (2543 - 2873)	6.9	1
Singapore	WPR	HIC	4508 (4280 - 4748)	11.5	2
Slovakia	EUR	HIC	5038 (4786 - 5314)	12.8	3
Slovenia	EUR	HIC	5105 (4844 - 5375)	13	2
Solomon Islands	WPR	LMC	2752 (2597 - 2910)	7	1
Somalia	EMR	LIC	2792 (2636 - 2954)	7.1	Missing data
South Africa	AFR	UMC	2559 (2426 - 2702)	6.5	2
South Sudan	AFR	LIC	2870 (2721 - 3044)	7.3	Missing data
Spain	EUR	HIC	3226 (3062 - 3395)	8.2	4
Sri Lanka	SEAR	LMC	4211 (4008 - 4439)	10.7	3
Sudan	EMR	LIC	2515 (2361 - 2677)	6.4	Missing data
Suriname	AMR	UMC	2870 (2719 - 3025)	7.3	2

National policy commitment	Voluntary measures						Mandatory measures							Notes
	Reformulation	Public food procurement and service	Front-of-pack labelling	Other interpretive nutrition labelling	Marketing restrictions	Media campaign	Declaration of sodium content	Reformulation	Public food procurement and service	Front-of-pack labelling	Other interpretive nutrition labelling	Marketing restrictions	Fiscal	
x		x				x	x							Mandatory declaration of sodium on pre-packaged food, but no other mandatory measures to bring country to score 3 or 4
						x	x		x					
x			x			x								
x														
x														
x														
x						x								
x						x	x							Mandatory declaration of sodium on pre-packaged food, but no other mandatory measures to bring country to score 3 or 4
x							x							Mandatory declaration of sodium on pre-packaged food, but no other mandatory measures to bring country to score 3 or 4
x														
x	x	x	x			x	x	x	x					
x	x													
x						x	x	x						
x							x		x					
x														
x	x	x	x			x								
						x	x	x						
x	x		x		x	x	x							Mandatory declaration of sodium on pre-packaged food, but no other mandatory measures to bring country to score 3 or 4
x														
x						x		x						Mandatory measures exist, but no mandatory declaration of sodium on pre-packaged food
	x	x	x			x	x	x	x			x		
x						x	x			x				
x						x								

Country	WHO region	WB income	mg/d sodium	g/d salt	Sodium Country Score
Sweden	EUR	HIC	3230 (3122 - 3348)	8.2	2
Switzerland	EUR	HIC	3302 (3130 - 3480)	8.4	2
Syrian Arab Republic	EMR	LIC	2367 (2231 - 2504)	6	Missing data
Tajikistan	EUR	LMC	3553 (3332 - 3786)	9	1
Thailand	SEAR	UMC	4250 (4050 - 4469)	10.8	3
Timor-Leste	SEAR	LMC	4125 (3892 - 4356)	10.5	2
Togo	AFR	LIC	2703 (2559 - 2866)	6.9	1
Tonga	WPR	UMC	2953 (2803 - 3104)	7.5	1
Trinidad and Tobago	AMR	HIC	2932 (2786 - 3081)	7.4	1
Tunisia	EMR	LMC	2414 (2275 - 2562)	6.1	2
Türkiye	EUR	UMC	2071 (1959 - 2186)	5.3	3
Turkmenistan	EUR	UMC	3562 (3336 - 3775)	9	2
Tuvalu	WPR	UMC	2980 (2831 - 3156)	7.6	2
Uganda	AFR	LIC	2811 (2640 - 2988)	7.1	1
Ukraine	EUR	LMC	2752 (2605 - 2904)	7	3
United Arab Emirates	EMR	HIC	2778 (2514 - 3061)	7.1	2
United Kingdom	EUR	HIC	2780 (2648 - 2918)	7.1	3
United Republic of Tanzania	AFR	LMC	3136 (2970 - 3304)	8	1
United States of America	AMR	HIC	3492 (3379 - 3601)	8.9	3
Uruguay	AMR	HIC	3692 (3518 - 3874)	9.4	4
Uzbekistan	EUR	LMC	3539 (3324 - 3768)	9	3
Vanuatu	WPR	LMC	2854 (2700 - 3018)	7.2	2
Venezuela (Bolivarian Republic of)	AMR	ND	4006 (3803 - 4215)	10.2	2
Viet Nam	WPR	LMC	4142 (3934 - 4368)	10.5	2
Yemen	EMR	LIC	2537 (2374 - 2731)	6.4	Missing data
Zambia	AFR	LIC	2788 (2637 - 2951)	7.1	1
Zimbabwe	AFR	LMC	3321 (3131 - 3522)	8.4	1

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

National policy commitment	Voluntary measures						Mandatory measures							Notes
	Reformulation	Public food procurement and service	Front-of-pack labelling	Other interpretive nutrition labelling	Marketing restrictions	Media campaign	Declaration of sodium content	Reformulation	Public food procurement and service	Front-of-pack labelling	Other interpretive nutrition labelling	Marketing restrictions	Fiscal	
	x	x	x				x							Mandatory declaration of sodium on pre-packaged food, but no other mandatory measures to bring country to score 3 or 4
x	x	x	x			x	x							Mandatory declaration of sodium on pre-packaged food, but no other mandatory measures to bring country to score 3 or 4
x														
x	x		x			x	x			x				
x						x								
x														
x														
x														
x	x					x								
x	x	x					x		x			x		Multiple mandatory measures exist but does not implement all WHO sodium-related best buys
x						x								
						x								
x														
x							x		x					
x			x			x	x							Mandatory declaration of sodium on pre-packaged food, but no other mandatory measures to bring country to score 3 or 4
x	x		x				x		x					
x														
x	x						x		x					
x	x					x	x		x	x		x		
x						x	x	x						
x	x					x								
x						x			x	x				Mandatory measures exist, but no mandatory declaration of sodium on pre-packaged food
x						x								
x														
x														

ANNEX 2

Details of sodium reduction policies and measures implemented around the world

Table A2.1 Type of policies with national sodium reduction policy commitments implemented around the world

Country	WHO region	World Bank income group	Type of policy with commitment
Afghanistan	EMR	LIC	Nutrition plan
Albania	EUR	UMC	Nutrition plan, noncommunicable disease plan
Algeria	AFR	LMC	Noncommunicable disease plan
Antigua and Barbuda	AMR	HIC	Nutrition plan, noncommunicable disease plan
Argentina	AMR	UMC	Nutrition plan, health sector plan, noncommunicable disease plan
Armenia	EUR	UMC	Noncommunicable disease plan
Australia	WPR	HIC	Noncommunicable disease plan
Azerbaijan	EUR	UMC	Noncommunicable disease plan
Bahamas	AMR	HIC	Nutrition plan
Bahrain	EMR	HIC	Nutrition plan, health sector plan, noncommunicable disease plan
Bangladesh	SEAR	LMC	Nutrition plan, health sector plan, noncommunicable disease plan
Barbados	AMR	HIC	Nutrition plan, noncommunicable disease plan
Belarus	EUR	UMC	Health sector plan
Belize	AMR	UMC	Noncommunicable disease plan
Benin	AFR	LMC	Noncommunicable disease plan
Bhutan	SEAR	LMC	Noncommunicable disease plan
Bosnia and Herzegovina	EUR	UMC	Nutrition plan, noncommunicable disease plan
Brazil	AMR	UMC	Nutrition plan, health sector plan, noncommunicable disease plan
Brunei Darussalam	WPR	HIC	Health sector plan, noncommunicable disease plan
Bulgaria	EUR	UMC	Health sector plan, noncommunicable disease plan
Burkina Faso	AFR	LIC	Noncommunicable disease plan
Burundi	AFR	LIC	Noncommunicable disease plan
Cambodia	WPR	LMC	Noncommunicable disease plan
Canada	AMR	HIC	Nutrition plan
Cabo Verde	AFR	LMC	Nutrition plan
Central African Republic	AFR	LIC	Noncommunicable disease plan
Chad	AFR	LIC	Noncommunicable disease plan
Chile	AMR	HIC	Nutrition plan
China	WPR	UMC	Nutrition plan
Colombia	AMR	UMC	Nutrition plan, health sector plan
Cook Islands	WPR	#N/A	Noncommunicable disease plan
Costa Rica	AMR	UMC	Nutrition plan
Côte d'Ivoire	AFR	LMC	Nutrition plan, noncommunicable disease plan

Country	WHO region	World Bank income group	Type of policy with commitment
Croatia	EUR	HIC	Nutrition plan, health sector plan
Cuba	AMR	UMC	Health sector plan
Cyprus	EUR	HIC	Nutrition plan
Czechia	EUR	HIC	Health sector plan
Democratic People's Republic of Korea	SEAR	LIC	Noncommunicable disease plan
Djibouti	EMR	LMC	Nutrition plan
Dominican Republic	AMR	UMC	Nutrition plan
Egypt	EMR	LMC	Nutrition plan, noncommunicable disease plan
El Salvador	AMR	LMC	Nutrition plan, noncommunicable disease plan
Eritrea	AFR	LIC	Nutrition plan
Estonia	EUR	HIC	Health sector plan, noncommunicable disease plan
Eswatini	AFR	LMC	Health sector plan
Ethiopia	AFR	LIC	Nutrition plan, health sector plan
Fiji	WPR	UMC	Nutrition plan, noncommunicable disease plan
Finland	EUR	HIC	Nutrition plan
France	EUR	HIC	Nutrition plan
Gabon	AFR	UMC	Nutrition plan
Ghana	AFR	LMC	Nutrition plan, noncommunicable disease plan
Greece	EUR	HIC	Nutrition plan
Grenada	AMR	UMC	Nutrition plan, noncommunicable disease plan
Guatemala	AMR	UMC	Nutrition plan
Guinea	AFR	LIC	Health sector plan
Guyana	AMR	UMC	Noncommunicable disease plan
Honduras	AMR	LMC	Nutrition plan, health sector plan
Hungary	EUR	HIC	Nutrition plan, health sector plan
Iceland	EUR	HIC	Nutrition plan
India	SEAR	LMC	Health sector plan, noncommunicable disease plan
Indonesia	SEAR	LMC	Nutrition plan, multisectoral development plan
Iran (Islamic Republic of)	EMR	LMC	Nutrition plan, noncommunicable disease plan multisectoral development plan
Iraq	EMR	UMC	Health sector plan
Ireland	EUR	HIC	Health sector plan
Israel	EUR	HIC	Nutrition plan
Italy	EUR	HIC	Health sector plan, noncommunicable disease plan
Jamaica	AMR	UMC	Nutrition plan, health sector plan, noncommunicable disease plan
Japan	WPR	HIC	Nutrition plan
Jordan	EMR	UMC	Noncommunicable disease plan

Country	WHO region	World Bank income group	Type of policy with commitment
Kenya	AFR	LMC	Noncommunicable disease plan
Kuwait	EMR	HIC	Nutrition plan
Kyrgyzstan	EUR	LMC	Health sector plan, noncommunicable disease plan
Lao People's Democratic Republic	WPR	LMC	Noncommunicable disease plan
Latvia	EUR	HIC	Health sector plan
Lebanon	EMR	LMC	Noncommunicable disease plan
Lesotho	AFR	LMC	Noncommunicable disease plan
Lithuania	EUR	HIC	Nutrition plan, health sector plan, noncommunicable disease plan
Luxembourg	EUR	HIC	Noncommunicable disease plan
Madagascar	AFR	LIC	Nutrition plan, noncommunicable disease plan
Malaysia	WPR	UMC	Nutrition plan, noncommunicable disease plan
Maldives	SEAR	UMC	Nutrition plan, noncommunicable disease plan
Mali	AFR	LIC	Noncommunicable disease plan
Malta	EUR	HIC	Nutrition plan, noncommunicable disease plan
Mauritania	AFR	LMC	Noncommunicable disease plan
Mauritius	AFR	UMC	Nutrition plan
Mexico	AMR	UMC	Noncommunicable disease plan
Micronesia (Federated States of)	WPR	LMC	Nutrition plan, noncommunicable disease plan
Mongolia	WPR	LMC	Nutrition plan, health sector plan, noncommunicable disease plan, food sector plan
Montenegro	EUR	UMC	Nutrition plan, health sector plan
Morocco	EMR	LMC	Noncommunicable disease plan
Mozambique	AFR	LIC	Noncommunicable disease plan
Myanmar	SEAR	LMC	Nutrition plan, noncommunicable disease plan
Namibia	AFR	UMC	Noncommunicable disease plan
Nauru	WPR	HIC	Noncommunicable disease plan
Nepal	SEAR	LMC	Noncommunicable disease plan
Netherlands	EUR	HIC	Nutrition plan, health sector plan
Nicaragua	AMR	LMC	Nutrition plan
Niger	AFR	LIC	Noncommunicable disease plan
Nigeria	AFR	LMC	Noncommunicable disease plan
North Macedonia	EUR	UMC	Nutrition plan
Norway	EUR	HIC	Nutrition plan, noncommunicable disease plan
Oman	EMR	HIC	Nutrition plan, noncommunicable disease plan
Palau	WPR	UMC	Noncommunicable disease plan
Panama	AMR	HIC	Nutrition plan
Papua New Guinea	WPR	LMC	Noncommunicable disease plan

Country	WHO region	World Bank income group	Type of policy with commitment
Paraguay	AMR	UMC	Health sector plan, noncommunicable disease plan
Peru	AMR	UMC	Noncommunicable disease plan
Philippines	WPR	LMC	Nutrition plan, health sector plan
Poland	EUR	HIC	Noncommunicable disease plan
Portugal	EUR	HIC	Nutrition plan
Qatar	EMR	HIC	Nutrition plan
Republic of Moldova	EUR	UMC	Nutrition plan, health sector plan, noncommunicable disease plan
Russian Federation	EUR	UMC	Nutrition plan
Rwanda	AFR	LIC	Noncommunicable disease plan
Saint Kitts and Nevis	AMR	HIC	Nutrition plan, noncommunicable disease plan
Saint Lucia	AMR	UMC	Nutrition plan, health sector plan
Saint Vincent and the Grenadines	AMR	UMC	Noncommunicable disease plan
Samoa	WPR	LMC	Nutrition plan
San Marino	EUR	HIC	Health sector plan
Sao Tome and Principe	AFR	LMC	Nutrition plan
Saudi Arabia	EMR	HIC	Nutrition plan
Senegal	AFR	LMC	Noncommunicable disease plan
Serbia	EUR	UMC	Health sector plan, noncommunicable disease plan
Seychelles	AFR	HIC	Noncommunicable disease plan
Sierra Leone	AFR	LIC	Noncommunicable disease plan
Singapore	WPR	HIC	Nutrition plan
Slovenia	EUR	HIC	Nutrition plan
Solomon Islands	WPR	LMC	Nutrition plan
South Africa	AFR	UMC	Nutrition plan, noncommunicable disease plan
Sri Lanka	SEAR	LMC	Noncommunicable disease plan
Suriname	AMR	UMC	Noncommunicable disease plan
Switzerland	EUR	HIC	Nutrition plan
Tajikistan	EUR	LMC	Nutrition plan
Thailand	SEAR	UMC	Noncommunicable disease plan
Timor-Leste	SEAR	LMC	Nutrition plan, noncommunicable disease plan
Togo	AFR	LIC	Noncommunicable disease plan
Tonga	WPR	UMC	Noncommunicable disease plan
Trinidad and Tobago	AMR	HIC	Noncommunicable disease plan
Tunisia	EMR	LMC	Nutrition plan, noncommunicable disease plan
Türkiye	EUR	UMC	Noncommunicable disease plan, multisectoral development plan
Turkmenistan	EUR	UMC	Health sector plan, noncommunicable disease plan
Uganda	AFR	LIC	Noncommunicable disease plan

Country	WHO region	World Bank income group	Type of policy with commitment
Ukraine	EUR	LMC	Noncommunicable disease plan
United Arab Emirates	EMR	HIC	Nutrition plan
United Kingdom	EUR	HIC	Nutrition plan, health sector plan
United Republic of Tanzania	AFR	LMC	Health sector plan, noncommunicable disease plan
United States of America	AMR	HIC	Health sector plan, noncommunicable disease plan
Uruguay	AMR	HIC	Health sector plan
Uzbekistan	EUR	LMC	Nutrition plan
Vanuatu	WPR	LMC	Nutrition plan, noncommunicable disease plan
Venezuela (Bolivarian Republic of)	AMR	N/A	Health sector plan
Viet Nam	WPR	LMC	Nutrition plan, noncommunicable disease plan
Zambia	AFR	LIC	Noncommunicable disease plan
Zimbabwe	AFR	LMC	Nutrition plan

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

Table A2.2 Food categories targeted by sodium reduction reformulation policies implemented around the world

Country	WHO region	World Bank income group	Mandatory	Voluntary
Argentina	AMR	UMC	Mandatory limits on sodium content in cakes, sweet biscuits and pastries; other sweet bakery ware, and dry mixes for making such; savoury snacks; ready-made and convenience foods and composite dishes; bread, bread products and crisp breads; processed meat, poultry, game, fish and similar; sauces, dips and dressings	
Australia	WPR	HIC		Voluntary reformulation targets for sodium content in cakes, sweet biscuits and pastries; other sweet bakery ware, and dry mixes for making such; savoury snacks; breakfast cereals; cheese; ready-made and convenience foods and composite dishes; bread, bread products and crisp breads; processed meat, poultry, game, fish and similar; sauces, dips and dressings
Austria	EUR	HIC	Mandatory limits on sodium content in ready-made and convenience foods and composite dishes; sauces, dips and dressings	Voluntary reformulation targets for sodium content in bread, bread products and crisp breads
Azerbaijan	EUR	UMC		Reported reformulation to Global Nutrition Policy Review (assumed as voluntary in the sodium report)
Bahrain	EMR	HIC	Mandatory limits on sodium content in bread, bread products and crisp breads	
Bangladesh	SEAR	LMC		Reported reformulation to Global Nutrition Policy Review (assumed as voluntary in the sodium report)
Belarus	EUR	UMC	Mandatory limits on sodium content in cakes, sweet biscuits and pastries; other sweet bakery ware, and dry mixes for making such; ready-made and convenience foods and composite dishes; processed meat, poultry, game, fish and similar; processed fruit, vegetables and legumes	
Belgium	EUR	HIC	Mandatory limits on sodium content in bread, bread products and crisp breads	
Brazil	AMR	UMC		Voluntary reformulation targets for sodium content in cakes, sweet biscuits and pastries; other sweet bakery ware, and dry mixes for making such; savoury snacks; breakfast cereals; cheese; ready-made and convenience foods and composite dishes; butter and other fats and oils; bread, bread products and crisp breads; processed meat, poultry, game, fish and similar; sauces, dips and dressings
Brunei Darussalam	WPR	HIC		Reported reformulation to Global Nutrition Policy Review (assumed as voluntary in the sodium report)
Bulgaria	EUR	UMC	Mandatory limits on sodium content in cheese; bread, bread products and crisp breads; processed meat, poultry, game, fish and similar; processed fruit, vegetables and legumes	

Country	WHO region	World Bank income group	Mandatory	Voluntary
Canada	AMR	HIC		Voluntary reformulation targets for sodium content in chocolate and sugar confectionery, energy bars, and sweet toppings and desserts; cakes, sweet biscuits and pastries; other sweet bakery ware, and dry mixes for making such; savoury snacks; breakfast cereals; cheese; ready-made and convenience foods and composite dishes; butter and other fats and oils; bread, bread products and crisp breads; fresh and frozen meat, poultry, game, fish and similar; processed meat, poultry, game, fish and similar; processed fruit, vegetables and legumes; plant-based food/meat analogues; sauces, dips and dressings
Chile	AMR	HIC		Voluntary reformulation targets for sodium content in bread, bread products and crisp breads
Colombia	AMR	UMC		Reported reformulation to Global Nutrition Policy Review (assumed as voluntary in the sodium report)
Costa Rica	AMR	UMC		Voluntary reformulation targets for sodium content in cakes, sweet biscuits and pastries; other sweet bakery ware, and dry mixes for making such; savoury snacks; bread, bread products and crisp breads; processed meat, poultry, game, fish and similar; sauces, dips and dressings
Croatia	EUR	HIC	Mandatory limits on sodium content in bread, bread products and crisp breads	
Czechia	EUR	HIC		Voluntary reformulation targets for sodium content in food category not specified
Denmark	EUR	HIC		Voluntary reformulation targets for sodium content in chocolate and sugar confectionery, energy bars, and sweet toppings and desserts; cakes, sweet biscuits and pastries; other sweet bakery ware, and dry mixes for making such; savoury snacks; beverages; breakfast cereals; cheese; ready-made and convenience foods and composite dishes; butter and other fats and oils; bread, bread products and crisp breads; fresh and frozen meat, poultry, game, fish and similar; processed meat, poultry, game, fish and similar; processed fruit, vegetables and legumes; sauces, dips and dressings
Egypt	EMR	LMC		Reported reformulation to Global Nutrition Policy Review (assumed as voluntary in the sodium report)
Estonia	EUR	HIC		Reported reformulation to Global Nutrition Policy Review (assumed as voluntary in the sodium report)
Fiji	WPR	UMC		Voluntary reformulation targets for sodium content in cakes, sweet biscuits and pastries; other sweet bakery ware, and dry mixes for making such; savoury snacks; ready-made and convenience foods and composite dishes; processed meat, poultry, game, fish and similar; plant-based food/meat analogues; sauces, dips and dressings

Country	WHO region	World Bank income group	Mandatory	Voluntary
France	EUR	HIC		Voluntary reformulation targets for sodium content in food category not specified
Germany	EUR	HIC		Voluntary reformulation targets for sodium content in ready-made and convenience foods and composite dishes; bread, bread products and crisp breads
Greece	EUR	HIC	Mandatory limits on sodium content in ready-made and convenience foods and composite dishes; processed fruit, vegetables and legumes; sauces, dips and dressings	Voluntary reformulation targets for sodium content in bread, bread products and crisp breads
Hungary	EUR	HIC	Mandatory limits on sodium content in cakes, sweet biscuits and pastries; other sweet bakery ware, and dry mixes for making such; bread, bread products and crisp breads; processed meat, poultry, game, fish and similar	
Iran (Islamic Republic of)	EMR	LMC	Mandatory limits on sodium content in cakes, sweet biscuits and pastries; other sweet bakery ware, and dry mixes for making such; savoury snacks; beverages; yoghurt, sour milk, cream and other similar foods; cheese; ready-made and convenience foods and composite dishes; butter and other fats and oils; bread, bread products and crisp breads; processed meat, poultry, game, fish and similar; processed fruit, vegetables and legumes	
Iraq	EMR	UMC	Mandatory limits on sodium content in bread, bread products and crisp breads	
Ireland	EUR	HIC		Voluntary reformulation targets for sodium content in food category not specified
Italy	EUR	HIC		Voluntary reformulation targets for sodium content in savoury snacks; breakfast cereals; ready-made and convenience foods and composite dishes; bread, bread products and crisp breads; fresh or dried pasta, noodles, rice and grains; processed fruit, vegetables and legumes
Jordan	EMR	UMC	Mandatory limits on sodium content in bread, bread products and crisp breads	
Kiribati	WPR	LMC	Mandatory limits on sodium content in ready-made and convenience foods and composite dishes; bread, bread products and crisp breads; processed meat, poultry, game, fish and similar	
Kuwait	EMR	HIC		Voluntary reformulation targets for sodium content in bread, bread products and crisp breads
Latvia	EUR	HIC	Mandatory limits on sodium content in bread, bread products and crisp breads; processed meat, poultry, game, fish and similar; processed fruit, vegetables and legumes	
Lithuania	EUR	HIC		Voluntary reformulation targets for sodium content in chocolate and sugar confectionery, energy bars, and sweet toppings and desserts; cakes, sweet biscuits and pastries; other sweet bakery ware, and dry mixes for making such; savoury snacks; bread, bread products and crisp breads; fresh or dried pasta, noodles, rice and grains; sauces, dips and dressings

Country	WHO region	World Bank income group	Mandatory	Voluntary
Malaysia	WPR	UMC	Mandatory limits on sodium content in chocolate and sugar confectionery, energy bars, and sweet toppings and desserts; butter and other fats and oils	
Malta	EUR	HIC		Reported reformulation to Global Nutrition Policy Review (assumed as voluntary in the sodium report)
Mauritius	AFR	UMC	Mandatory limits on sodium content in chocolate and sugar confectionery, energy bars, and sweet toppings and desserts; butter and other fats and oils	
Mexico	AMR	UMC		Voluntary reformulation targets for sodium content in bread, bread products and crisp breads
Montenegro	EUR	UMC	Mandatory limits on sodium content in bread, bread products and crisp breads; fresh or dried pasta, noodles, rice and grains	
Netherlands	EUR	HIC	Mandatory limits on sodium content in bread, bread products and crisp breads	Voluntary reformulation targets for sodium content in food category not specified
New Zealand	WPR	HIC		Voluntary reformulation targets for sodium content in savoury snacks; breakfast cereals; cheese; ready-made and convenience foods and composite dishes; butter and other fats and oils; bread, bread products and crisp breads; processed meat, poultry, game, fish and similar; processed fruit, vegetables and legumes; sauces, dips and dressings
Norway	EUR	HIC		Voluntary reformulation targets for sodium content in cakes, sweet biscuits and pastries; other sweet bakery ware, and dry mixes for making such; savoury snacks; breakfast cereals; cheese; ready-made and convenience foods and composite dishes; butter and other fats and oils; bread, bread products and crisp breads; processed meat, poultry, game, fish and similar; processed fruit, vegetables and legumes; sauces, dips and dressings
Oman	EMR	HIC	Mandatory limits on sodium content in bread, bread products and crisp breads	
Paraguay	AMR	UMC	Mandatory limits on sodium content in cakes, sweet biscuits and pastries; other sweet bakery ware, and dry mixes for making such; savoury snacks; bread, bread products and crisp breads	
Portugal	EUR	HIC	Mandatory limits on sodium content in bread, bread products and crisp breads	Voluntary reformulation targets for sodium content in bread, bread products and crisp breads
Qatar	EMR	HIC		Reported reformulation to Global Nutrition Policy Review (assumed as voluntary in the sodium report)
Republic of Korea	WPR	HIC		Reported reformulation to Global Nutrition Policy Review (assumed as voluntary in the sodium report)

Country	WHO region	World Bank income group	Mandatory	Voluntary
Saudi Arabia	EMR	HIC	Mandatory limits on sodium content in bread, bread products and crisp breads	Voluntary reformulation targets for sodium content in cakes, sweet biscuits and pastries; other sweet bakery ware, and dry mixes for making such; savoury snacks; beverages; breakfast cereals; yoghurt, sour milk, cream and other similar foods; cheese; ready-made and convenience foods and composite dishes; butter and other fats and oils; fresh or dried pasta, noodles, rice and grains; processed meat, poultry, game, fish and similar; processed fruit, vegetables and legumes; sauces, dips and dressings
Senegal	AFR	LMC		Reported reformulation to Global Nutrition Policy Review (assumed as voluntary in the sodium report)
Serbia	EUR	UMC	Mandatory limits on sodium content in processed meat, poultry, game, fish and similar	
Singapore	WPR	HIC		Reported reformulation to Global Nutrition Policy Review (assumed as voluntary in the sodium report)
Slovakia	EUR	HIC	Mandatory limits on sodium content in cakes, sweet biscuits and pastries; other sweet bakery ware, and dry mixes for making such; savoury snacks; cheese; ready-made and convenience foods and composite dishes; bread, bread products and crisp breads; processed meat, poultry, game, fish and similar; sauces, dips and dressings	
Slovenia	EUR	HIC		Voluntary reformulation targets for sodium content in savoury snacks; breakfast cereals; bread, bread products and crisp breads; processed meat, poultry, game, fish and similar
South Africa	AFR	UMC	Mandatory limits on sodium content in savoury snacks; breakfast cereals; ready-made and convenience foods and composite dishes; butter and other fats and oils; bread, bread products and crisp breads; processed meat, poultry, game, fish and similar; sauces, dips and dressings	
Spain	EUR	HIC	Mandatory limits on sodium content in bread, bread products and crisp breads	Voluntary reformulation targets for sodium content in savoury snacks; ready-made and convenience foods and composite dishes; bread, bread products and crisp breads; processed meat, poultry, game, fish and similar; sauces, dips and dressings
Sweden	EUR	HIC		Reported reformulation to Global Nutrition Policy Review (assumed as voluntary in the sodium report)
Switzerland	EUR	HIC		Voluntary reformulation targets for sodium content in ready-made and convenience foods and composite dishes; bread, bread products and crisp breads; processed meat, poultry, game, fish and similar; processed fruit, vegetables and legumes
Thailand	SEAR	UMC		Reported reformulation to Global Nutrition Policy Review (assumed as voluntary in the sodium report)

Country	WHO region	World Bank income group	Mandatory	Voluntary
Tunisia	EMR	LMC		Reported reformulation to Global Nutrition Policy Review (assumed as voluntary in the sodium report)
Türkiye	EUR	UMC		Voluntary reformulation targets for sodium content in cakes, sweet biscuits and pastries; other sweet bakery ware, and dry mixes for making such; savoury snacks; breakfast cereals; yoghurt, sour milk, cream and other similar foods; cheese; ready-made and convenience foods and composite dishes; butter and other fats and oils; bread, bread products and crisp breads; fresh or dried pasta, noodles, rice and grains; processed meat, poultry, game, fish and similar; processed fruit, vegetables and legumes; sauces, dips and dressings
United Kingdom	EUR	HIC		Voluntary reformulation targets for sodium content in cakes, sweet biscuits and pastries; other sweet bakery ware, and dry mixes for making such; savoury snacks; beverages; breakfast cereals; cheese; ready-made and convenience foods and composite dishes; butter and other fats and oils; bread, bread products and crisp breads; fresh or dried pasta, noodles, rice and grains; processed meat, poultry, game, fish and similar; processed fruit, vegetables and legumes; plant-based food/ meat analogues; sauces, dips and dressings; food category not specified
United States of America	AMR	HIC		Voluntary reformulation targets for sodium content in chocolate and sugar confectionery, energy bars, and sweet toppings and desserts; cakes, sweet biscuits and pastries; other sweet bakery ware, and dry mixes for making such; savoury snacks; breakfast cereals; cheese; ready-made and convenience foods and composite dishes; butter and other fats and oils; bread, bread products and crisp breads; fresh and frozen meat, poultry, game, fish and similar; processed meat, poultry, game, fish and similar; processed fruit, vegetables and legumes; plant-based food/meat analogues; sauces, dips and dressings
Uruguay	AMR	HIC		Voluntary reformulation targets for sodium content in bread, bread products and crisp breads
Uzbekistan	EUR	LMC	Mandatory limits on sodium content in cheese; bread, bread products and crisp breads; processed meat, poultry, game, fish and similar	
Vanuatu	WPR	LMC		Reported reformulation to Global Nutrition Policy Review (assumed as voluntary in the sodium report)

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Table A2.3 Settings covered by public food procurement and service policies implemented around the world

Country	WHO region	World Bank income group	Mandatory	Voluntary
Argentina	AMR	UMC	Restaurants and food outlets	
Australia	WPR	HIC		Schools
Bahrain	EMR	HIC	Schools	
Barbados	AMR	HIC		Schools
Belgium	EUR	HIC		Schools
Brazil	AMR	UMC	Schools, workplaces, government canteens or universities	
Brunei Darussalam	WPR	HIC	Schools	Restaurants and food outlets
Bulgaria	EUR	UMC	Schools	
Cabo Verde	AFR	LMC	Schools	
Chile	AMR	HIC	Schools	
China	WPR	UMC		Schools, workplaces, government canteens or universities
Colombia	AMR	UMC	Schools	
Costa Rica	AMR	UMC	Schools	
Czechia	EUR	HIC	Schools	
El Salvador	AMR	LMC	Schools	
Estonia	EUR	HIC	Schools	
Finland	EUR	HIC		Schools
France	EUR	HIC	Schools	
Greece	EUR	HIC	Schools	
Haiti	AMR	LMC		Schools
Hungary	EUR	HIC	All food procured by the government, schools, hospitals or caring homes	
Iceland	EUR	HIC		Schools
Ireland	EUR	HIC	Schools	
Israel	EUR	HIC	Schools	
Jordan	EMR	UMC	Schools	
Kiribati	WPR	LMC	Schools	
Latvia	EUR	HIC	Schools	
Lithuania	EUR	HIC	Schools	
Malaysia	WPR	UMC	Workplaces, government canteens or universities, hospitals or caring homes	
Malta	EUR	HIC	Schools	
Mexico	AMR	UMC	Schools	
Mongolia	WPR	LMC	Schools	
New Zealand	WPR	HIC		Schools

Country	WHO region	World Bank income group	Mandatory	Voluntary
Panama	AMR	HIC	Schools	
Peru	AMR	UMC	Schools	
Philippines	WPR	LMC	Schools, workplaces, government canteens or universities	
Poland	EUR	HIC	Schools	
Portugal	EUR	HIC		Schools
Qatar	EMR	HIC	Schools, government canteens or universities, hospitals or caring homes	Schools
Republic of Korea	WPR	HIC	Schools, restaurants and food outlets	
Republic of Moldova	EUR	UMC		Schools
Romania	EUR	HIC	Schools	
Saudi Arabia	EMR	HIC	All food procured by the government	Workplaces, government canteens or universities
Seychelles	AFR	HIC	Schools	
Singapore	WPR	HIC		Schools, workplaces, government canteens or universities, restaurants and food outlets
Spain	EUR	HIC	Schools	Schools
Sweden	EUR	HIC		Schools
Switzerland	EUR	HIC		Schools, workplaces, government canteens or universities, hospitals or caring homes
Türkiye	EUR	UMC	Schools	Schools
Ukraine	EUR	LMC	Schools	
United Kingdom	EUR	HIC	Schools	
United States of America	AMR	HIC	Schools	
Uruguay	AMR	HIC	Schools	
Venezuela (Bolivarian Republic of)	AMR	ND	Restaurants and food outlets	

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Table A2.4 Front-of-pack labelling systems with sodium included in an underlying nutrient-profile model implemented around the world

Country	WHO region	World Bank income group	Mandatory	Voluntary
Australia	WPR	HIC		Summary indicator
Belgium	EUR	HIC		Summary indicator
Brazil	AMR	UMC	Warning sign	
Brunei Darussalam	WPR	HIC		Endorsement logo
Chile	AMR	HIC	Warning sign	
Croatia	EUR	HIC		Endorsement logo
Czechia	EUR	HIC		Endorsement logo
Denmark	EUR	HIC		Endorsement logo
Ecuador	AMR	UMC	Multiple traffic light system	
Finland	EUR	HIC		Endorsement logo
France	EUR	HIC		Summary indicator
Germany	EUR	HIC		Summary indicator
Iceland	EUR	HIC		Endorsement logo
Indonesia	SEAR	LMC		Endorsement logo; Proportion of daily intake
Iran (Islamic Republic of)	EMR	LMC	Multiple traffic light system	
Israel	EUR	HIC	Warning sign	
Italy	EUR	HIC		Proportion of daily intake
Lithuania	EUR	HIC		Endorsement logo
Luxembourg	EUR	HIC		Summary indicator
Malaysia	WPR	UMC		Endorsement logo
Mexico	AMR	UMC	Warning sign	
Mongolia	WPR	LMC		Multiple traffic light system
New Zealand	WPR	HIC		Summary indicator
Norway	EUR	HIC		Endorsement logo
Peru	AMR	UMC	Warning sign	
Poland	EUR	HIC		Endorsement logo
Republic of Korea	WPR	HIC	Multiple traffic light system	
Russian Federation	EUR	UMC		Multiple traffic light system
Saudi Arabia	EMR	HIC		Multiple traffic light system
Singapore	WPR	HIC		Endorsement logo
Slovenia	EUR	HIC		Endorsement logo
Spain	EUR	HIC		Summary indicator
Sri Lanka	SEAR	LMC	Multiple traffic light system	
Sweden	EUR	HIC		Endorsement logo
Switzerland	EUR	HIC		Summary indicator

Country	WHO region	World Bank income group	Mandatory	Voluntary
Thailand	SEAR	UMC	Proportion of daily intake	Endorsement logo
United Arab Emirates	EMR	HIC		Multiple traffic light system
United Kingdom	EUR	HIC		Multiple traffic light system
Uruguay	AMR	HIC	Warning sign	
Venezuela (Bolivarian Republic of)	AMR	ND	Warning sign	

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Table A2.5 Channels and settings covered by marketing restriction policies implemented around the world

Country	WHO region	World Bank income group	Mandatory	Voluntary
Brazil	AMR	UMC	TV and radio; streets, stores, cinemas; sponsorship; mandatory health warning or message on advertisements only	
Brunei Darussalam	WPR	HIC		TV and radio; Internet, social media, apps, emails; streets, stores, cinemas; in and around schools or settings where children gather; sponsorship; measures exist that cover children up to 18 years of age
Cabo Verde	AFR	LMC	In and around schools or settings where children gather; mandatory in schools only; measures exist that cover children up to 18 years of age	
Chile	AMR	HIC	TV and radio; Internet, social media, apps, emails; in and around schools or settings where children gather	
Colombia	AMR	UMC	In and around schools or settings where children gather	
Costa Rica	AMR	UMC	In and around schools or settings where children gather; measures exist that cover children up to 18 years of age	
Czechia	EUR	HIC	In and around schools or settings where children gather; measures exist that cover children up to 18 years of age	
Denmark	EUR	HIC		TV and radio; Internet, social media, apps, emails; sponsorship; measures exist that cover children up to 18 years of age
Ecuador	AMR	UMC	In and around schools or settings where children gather; measures exist that cover children up to 18 years of age	
El Salvador	AMR	LMC	In and around schools or settings where children gather; measures exist that cover children up to 18 years of age	
Iceland	EUR	HIC		TV and radio; streets, stores, cinemas; in and around schools or settings where children gather; sponsorship; measures exist that cover children up to 18 years of age
Ireland	EUR	HIC	TV and radio; Internet, social media, apps, emails; streets, stores, cinemas; sponsorship	
Lithuania	EUR	HIC	In and around schools or settings where children gather; measures exist that cover children up to 18 years of age	
Malta	EUR	HIC	In and around schools or settings where children gather; measures exist that cover children up to 18 years of age	
Netherlands	EUR	HIC		TV and radio; streets, stores, cinemas; in and around schools or settings where children gather
Panama	AMR	HIC	In and around schools or settings where children gather; sponsorship; mandatory in schools only; measures exist that cover children up to 18 years of age	

Country	WHO region	World Bank income group	Mandatory	Voluntary
Peru	AMR	UMC	TV and radio; Internet, social media, apps, emails; streets, stores, cinemas; mandatory health warning or message on advertisements only	
Philippines	WPR	LMC	In and around schools or settings where children gather; mandatory in schools only	
Poland	EUR	HIC		TV and radio; in and around schools or settings where children gather; sponsorship
Portugal	EUR	HIC	TV and radio; Internet, social media, apps, emails; streets, stores, cinemas; in and around schools or settings where children gather	TV and radio; Internet, social media, apps, emails; in and around schools or settings where children gather
Republic of Korea	WPR	HIC	TV and radio	
Slovenia	EUR	HIC		TV and radio; measures exist that cover children up to 18 years of age
Spain	EUR	HIC	In and around schools or settings where children gather	
Türkiye	EUR	UMC	TV and radio; measures exist that cover children up to 18 years of age	
Uruguay	AMR	HIC	In and around schools or settings where children gather; measures exist that cover children up to 18 years of age	

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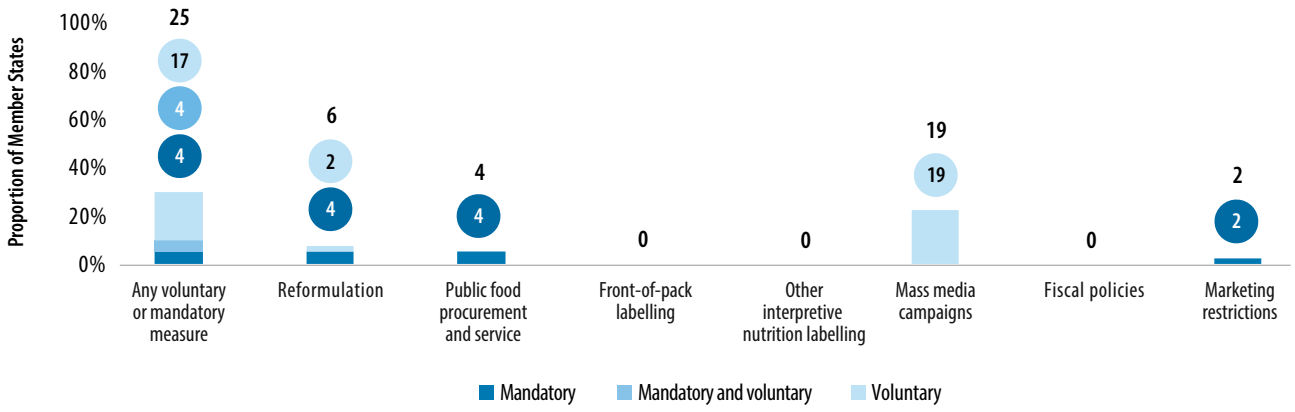
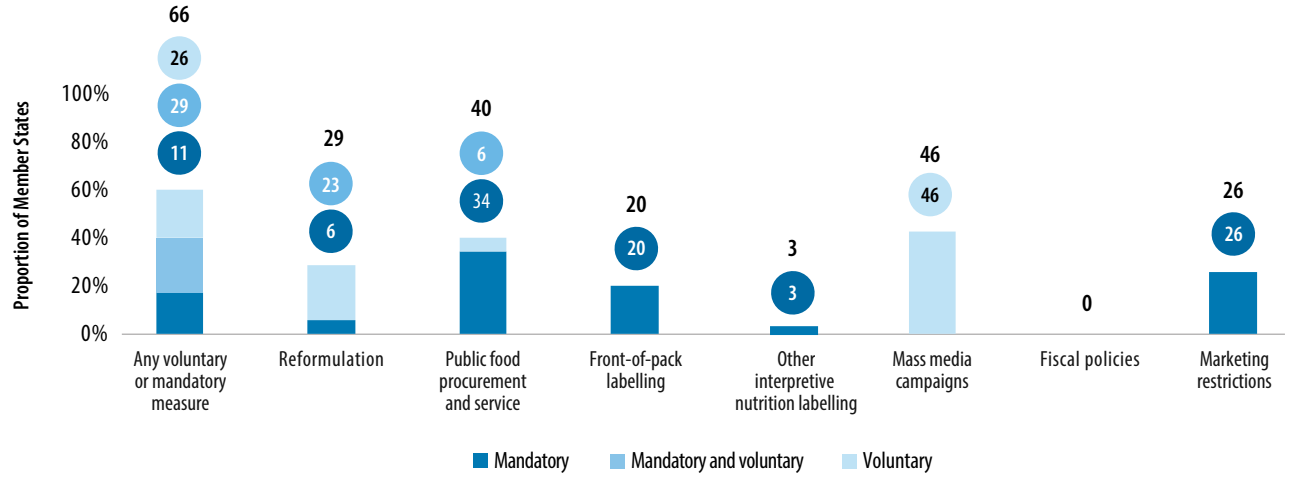
Overview of mandatory and voluntary measures and other policies by WHO region

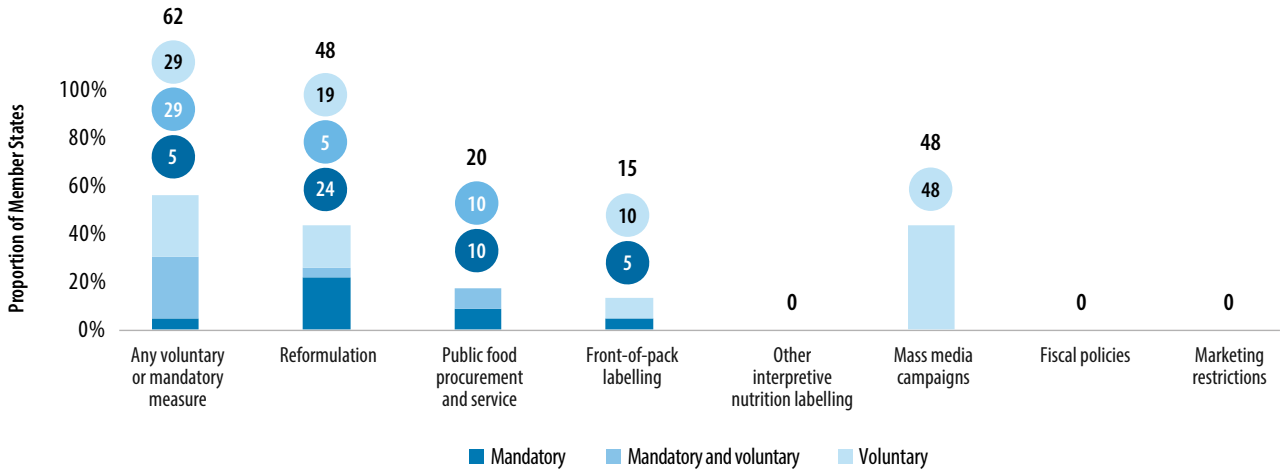
African Region



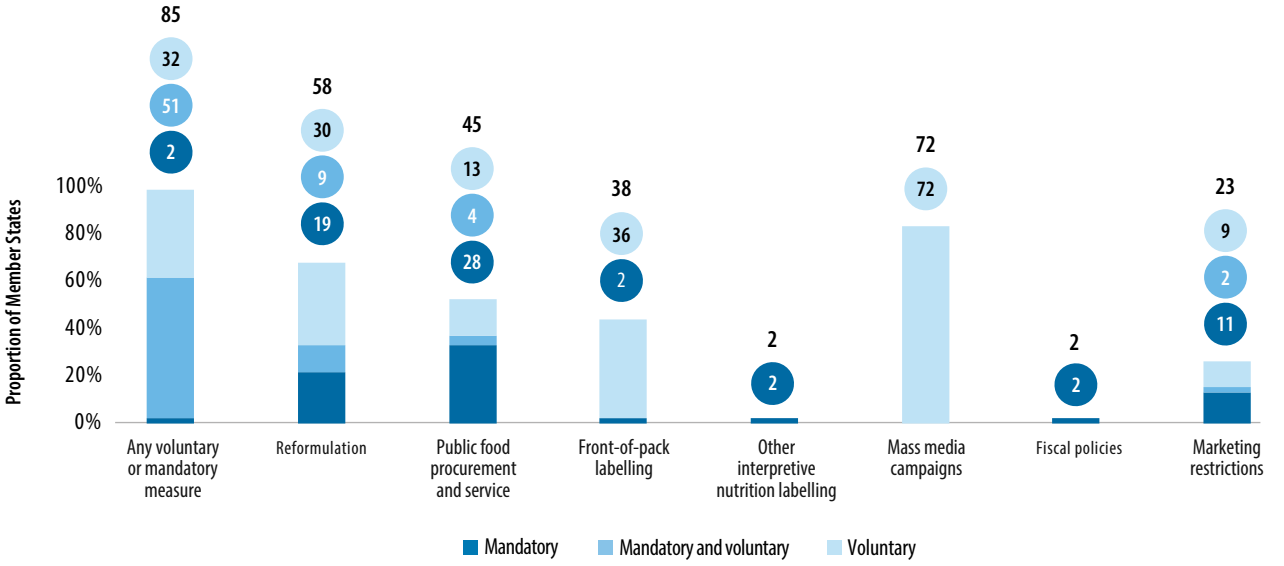
Region of the Americas



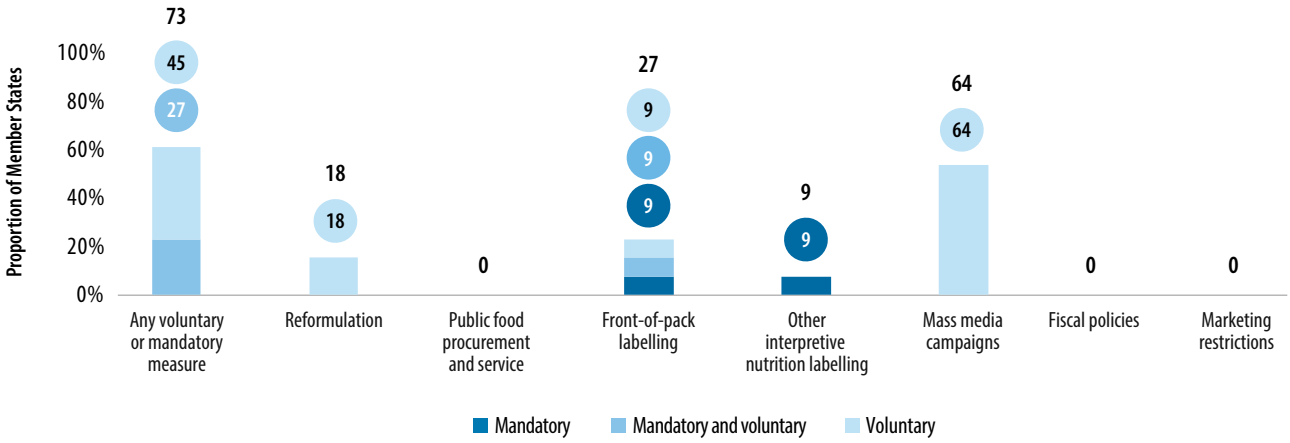
Eastern Mediterranean Region



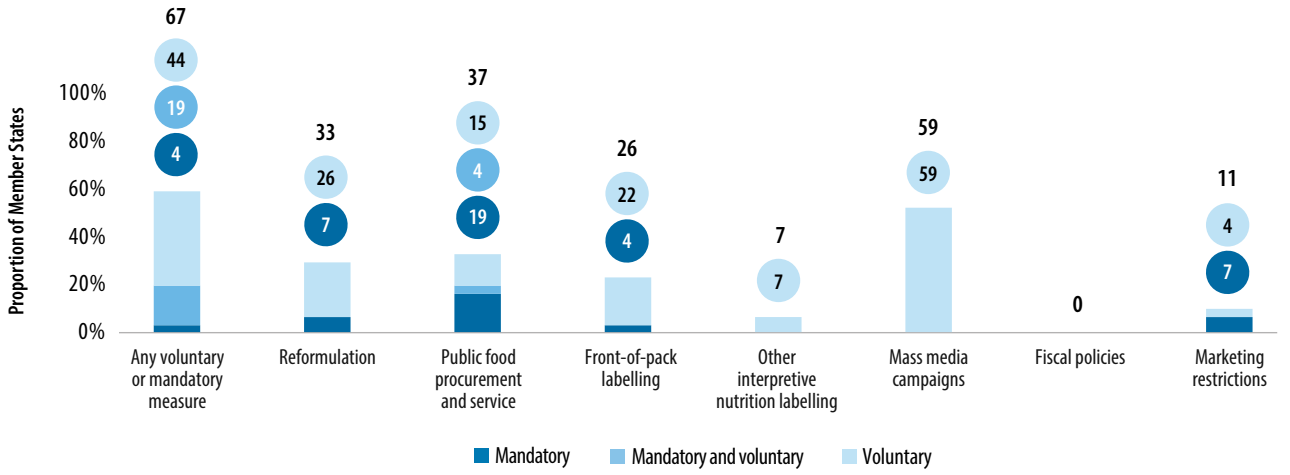
European Region



South-East Asia Region

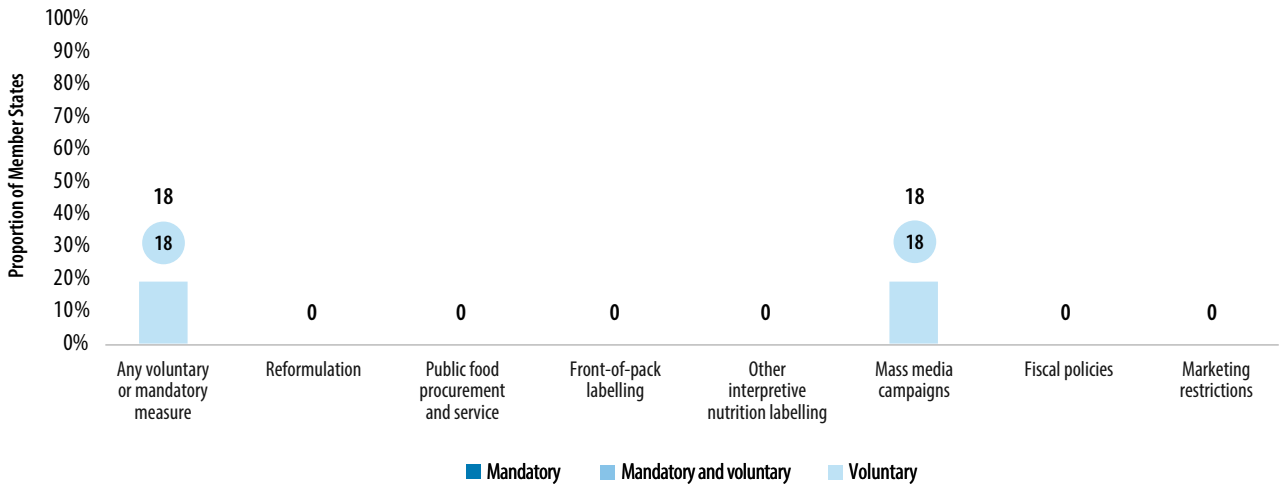


Western Pacific Region

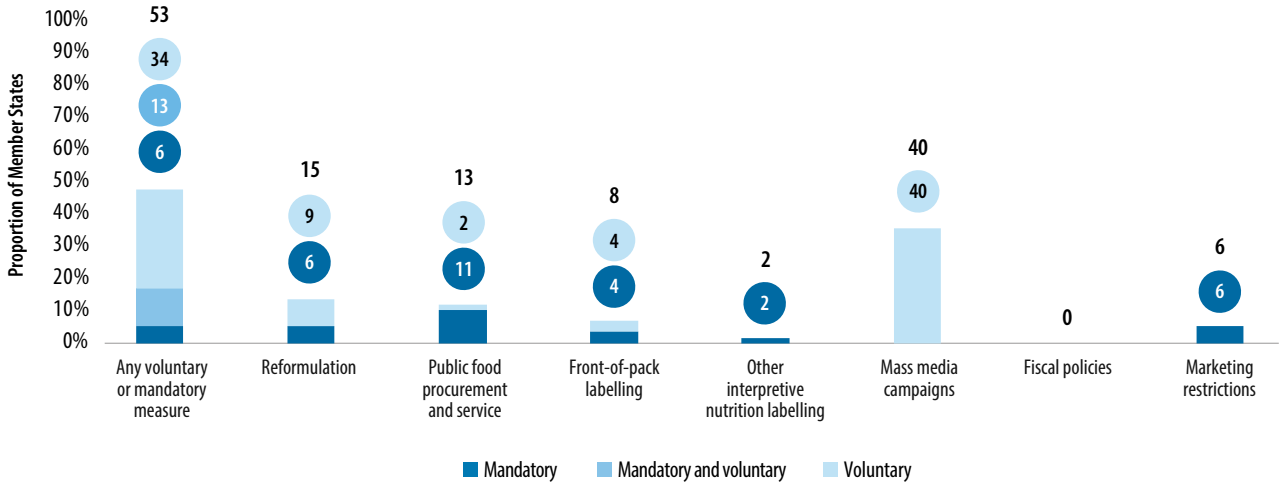


Overview of mandatory and voluntary measures and other policies by income group

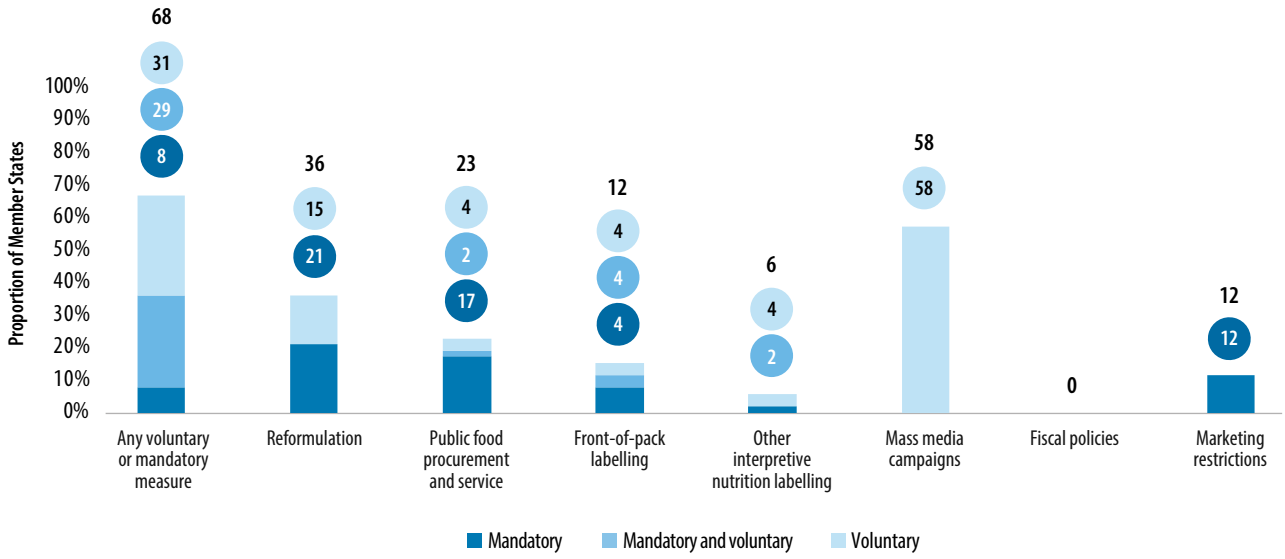
Low income



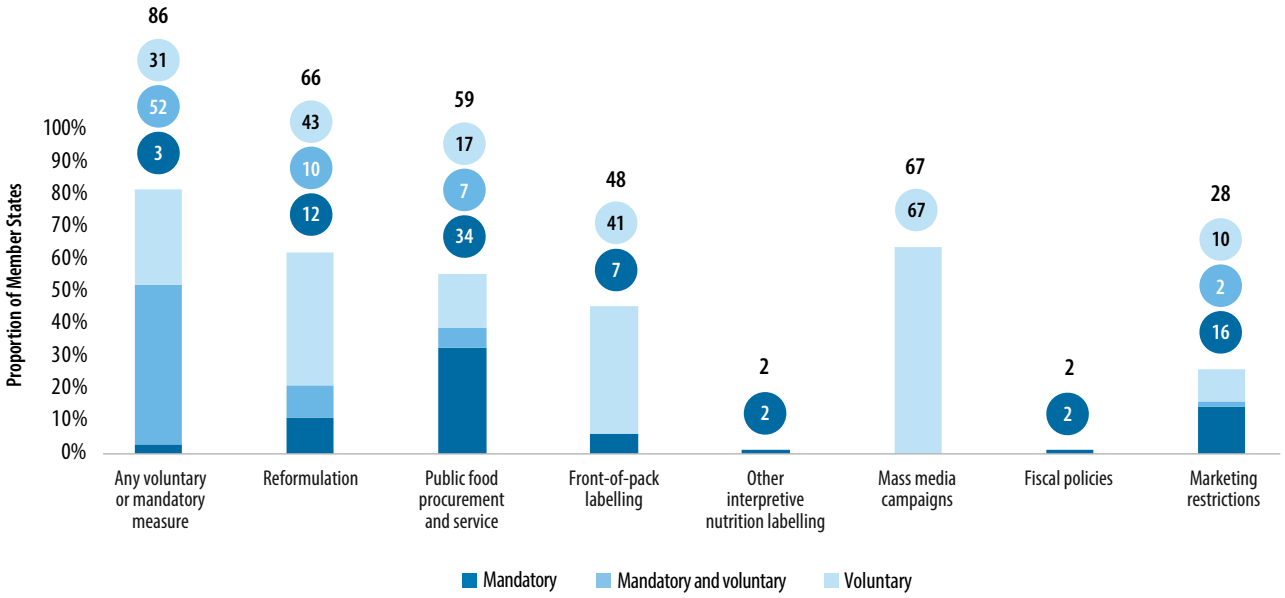
Lower-middle income



Upper-middle income



High income



For more information, please contact:

World Health Organization

Avenue Appia 20, CH-1211 Geneva 27, Switzerland

E-mail: nfs@who.int

https://www.who.int/teams/nutrition-and-food-safety

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