

COUNTDOWN TO 2023

WHO REPORT ON GLOBAL TRANS FAT ELIMINATION 2020



**World Health
Organization**



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Special thanks are due to Member States, which are committed and are taking concrete actions to achieve the global target of TFA elimination by 2023.



ACRONYMS

ANVISA	Agência Nacional de Vigilância Sanitária (Brazil's National Agency of Sanitary Surveillance)	IHME	Institute for Health Metrics and Evaluation
CHD	coronary heart disease	NAFDAC	Nigerian National Agency for Food and Drug Administration and Control
EAEU	Eurasian Economic Union	NCD	noncommunicable disease
EEA	European Economic Area	PAHO	Pan-American Health Organization
EU	European Union	PHO	partially hydrogenated oils
GBD	Global Burden of Disease	SFDA	Saudi Arabian Food and Drug Administration
GCC	Gulf Cooperation Council	SFA	saturated fatty acids
GSO	GCC Standardization Organization	TFA	<i>trans</i> -fatty acids
IFBA	International Food and Beverage Alliance	WHO	World Health Organization



FOREWORD

COUNTDOWN TO 2023: WHO REPORT ON GLOBAL TRANS FAT ELIMINATION 2020

Noncommunicable diseases (NCDs) – including heart disease, stroke, cancer and diabetes – kill 41 million people worldwide every year. Cardiovascular disease is the main killer, accounting for nearly half of all NCD deaths. Many of these deaths are in people under 70 years of age, and most occur in low- and middle-income countries. The World Health Organization (WHO) is committed to supporting countries to achieve the Sustainable Development Goal objective of reducing premature deaths from NCDs by one third by 2030.

Diet-related risk factors are a major driver of preventable deaths due to cardiovascular disease. Industrially produced *trans*-fatty acids (TFA), which are still used in some countries as an ingredient in fried food, deep-fried food, baked goods and spreads, are linked with heart disease and death. But they can be completely eliminated and replaced with healthier oils and fats without changing the taste or cost of food.

Elimination of industrially produced TFA from food is feasible, cost-effective and life-saving. A number of countries have already taken action to ban industrially produced TFA and protect their citizens. The 12 largest multinational food companies have also committed to eliminate industrially produced TFA from all their products by the year 2023. Yet action has been largely concentrated in wealthier countries, and countries with fewer resources continue to be disproportionately at risk of preventable deaths from TFA. This is unacceptable and unnecessary.

Global elimination of industrially produced TFA is a WHO priority and a target in the 13th General Programme of Work, which guides our work through to 2023. WHO will support Member States to replace these harmful substances with healthier oils and fats. The WHO REPLACE action framework was launched in May 2018 and its accompanying six modules in May 2019 to guide governments to achieve this goal. Since then, Member States have made encouraging progress in eliminating TFA from their food supplies. But most countries remain unprotected from the harms of TFA. There is much more to be done to meet the goal of global elimination of industrially produced TFA from the entire global food supply in the next three years, by 2023.

A handwritten signature in blue ink, appearing to read "Tedros Adhanom Ghebreyesus".

Dr Tedros Adhanom Ghebreyesus

Director-General
World Health Organization



EXECUTIVE SUMMARY

Intake of *trans*-fatty acids (TFA) is associated with increased risk of heart attacks and death from coronary heart disease. Replacing industrially produced TFA with healthier oils and fats is cost-effective and feasible, and can be done without changing the taste of food or its cost to the consumer.

In May 2018, the World Health Organization (WHO) called for the global elimination of industrially produced TFA by 2023 and released the REPLACE action framework. The framework is a roadmap for countries to implement the prompt, complete and sustained elimination of industrially produced TFA from the food supply. In May 2019, WHO released six REPLACE modules, which provide practical, step-by-step implementation guidance to support governments. WHO recommends that countries adopt and implement one of two best-practice policy options for eliminating industrially produced TFA from the food supply.

Countries are responding to this call to action, and the number of countries passing and implementing best-practice policies is growing. As of May 2020, best-practice TFA policies that either virtually eliminate industrially produced TFA or ban partially hydrogenated oils (PHO) are in effect for 589 million people in 14 countries (8% global population coverage). The number of countries with some form of mandatory TFA limits – either best-practice TFA policies or less restrictive TFA limits – has risen to 32 (32% global population coverage).

Since the publication of the first progress report in May 2019, more than 40 countries have taken action to initiate or advance TFA policy discussions. Best-practice policies came into effect in Lithuania and Saudi Arabia, and were passed in Brazil and Turkey. India and Nigeria notified draft best-practice TFA policies for public comment. In October 2019, the 35 Member States of the WHO Regional Office for the Americas/Pan-American Health Organization unanimously approved a regional plan of action to eliminate industrially produced TFA by 2025. As well, civil society organizations have increased advocacy to support regulations and product reformulation.

In its first two years, the global initiative to eliminate industrially produced TFA has produced encouraging results in some countries, but most still do not have policies in place to protect their citizens from the harmful effects of TFA. To meet the 2023 target, WHO recommends that countries take the following actions in the coming year.

- Develop and implement best-practice policies to set TFA limits or to ban PHO.
- Invest in monitoring mechanisms, such as laboratory capacity to measure TFA content in foods.
- Advocate for regional or subregional regulations to expand the benefits of TFA policies.

WHO will strengthen its support to countries working to eliminate TFA by the following activities:

- Continue to provide technical support for building regulatory capacities to accelerate best-practice policy development, implementation and enforcement in countries. This includes strengthening laboratory capacity to assess TFA content in foods.
- Disseminate country experiences, success stories and good practices, and recognize achievements by countries.
- Undertake global advocacy through existing and newly developed frameworks and initiatives, such as the World Health Assembly, the United Nations Decade of Action on Nutrition, and the United Nations Food System Summit.

WHO expects food and beverage industry groups to implement the commitments they have made to eliminate industrially produced TFA from product lines. WHO also expects major suppliers of oils and fats to step up to remove industrially produced TFA from the products that are sold to food manufacturers globally.







I. INTRODUCTION

Cardiovascular disease is the leading killer globally, causing an estimated 17.9 million deaths every year (Wang H et al., 2016). Based on the most recent global systematic evaluation of diet-related disease burden, dietary risks were responsible for 10 million deaths from cardiovascular disease among adults (Afshin et al., 2019). Intake of *trans*-fatty acids (TFA) is associated with increased risk of heart attacks and death from coronary heart disease (CHD) (WHO, 2019a). Although limited data are available on TFA intake globally, a recent report estimated that the 2017 global market volume of partially hydrogenated oils (PHO) – the main source of industrially produced TFA in food – was approximately 13.6 million tonnes (Persistence Market Research, 2018).

Among various measures to tackle dietary risks, elimination of industrially produced TFA is a relatively straightforward, low-cost, one-time policy measure that is within reach and has significant long-term health benefits. Replacing industrially produced TFA with healthier oils and fats is feasible and cost-effective, and will save lives.

TFA elimination has gained momentum as a global priority. As of May 2020, 32 countries have implemented mandatory TFA limits, covering 2.4 billion people (32% of the global population) (UN DESA, 2019). Of these, 14 countries – covering 589 million people (8% of the global population) – have implemented a best-practice TFA policy that either virtually eliminates industrially produced TFA or bans PHO. An additional 26 countries, with approximately 815 million people, have passed a best-practice TFA policy that will come into effect in the next two years.

Regional regulations are an increasingly popular approach to the elimination of industrially produced TFA. In 2015, the Eurasian Economic Union (EAEU) became the first regional body to put into effect a TFA elimination policy. This was followed by the Gulf Cooperation Council (GCC) and the European Union (EU), which passed TFA limits in 2015 and 2019, respectively. In October 2019, countries in the Americas unanimously passed the Action Plan to Eliminate Trans-Fatty Acids from Industrial Production 2020–2025. Together, these four regional initiatives have the potential to protect more than 1.7 billion people in 73 countries.

In many countries, civil society organizations are advocating for mandatory TFA limits and supporting governments to set these limits. The food industry is also becoming more receptive to replacing industrially produced TFA in their products with healthier oils and fats.

In 2018, TFA elimination was identified as one of the priority targets in the World Health Organization (WHO) 13th General Programme of Work, which guides the five-year work of WHO in 2019–2023. Also in 2018, the REPLACE action package was launched to help countries eliminate industrially produced TFA from their food supplies. WHO released additional resources in 2019 to support country actions, including six implementation modules and a live policy tracking map – the TFA Country Score Card¹ – to monitor global progress towards the 2023 target. In 2020, WHO established a TFA indicator that records whether countries have adopted WHO best-practice policies for eliminating industrially produced TFA (WHO, 2020a). The TFA indicator is discussed in section II.

Terms used in this report are described in Table 1.

¹ <https://extranet.who.int/nutrition/gina/en/scorecard/TFA>

TABLE 1. DEFINITIONS OF POLICY CATEGORIES

"Best-practice TFA policy"	<p>Legislative or regulatory measures that limit industrially produced TFA in foods in all settings and are in line with the recommended approach. The two best-practice policies for TFA elimination are:</p> <ol style="list-style-type: none"> 1 Mandatory national limit of 2 g of industrially produced TFA per 100 g of total fat in all foods; and 2 Mandatory national ban on the production or use of PHO as an ingredient in all foods.
"Best-practice TFA policy passed but not in effect"	<p>Best-practice policies have been passed but have not yet come into effect.</p>
"Less restrictive TFA limits"	<p>Legislative or regulatory measures that limit industrially produced TFA in foods in all settings, but are less restrictive than the recommended approach (e.g. 2% limit for industrially produced TFA in oils and fats only; 2% limit for industrially produced TFA in oils and fats, and 5% limit in other foods; 5% limit for industrially produced TFA in oils and fats).</p>
"Mandatory TFA limits"	<p>A broader term that refers to both "best-practice TFA policy" and "less restrictive TFA limits".</p>
"Other complementary measures"	<p>Legislative or other measures that encourage consumers to make healthier choices about industrially produced TFA (e.g. mandatory declaration of TFA on nutrition labels; front-of-pack labelling system that includes TFA; reformulation) or mandatory limits on industrially produced TFA in foods in specific settings (e.g. public institutions).</p>
"National policy commitment to eliminate TFA"	<p>National policies, strategies or action plans that express a commitment to reduce industrially produced TFA in the food supply.</p>
● "Monitoring mechanism for mandatory TFA limits"	<p>A mechanism that monitors the legislative or regulatory measures for mandatory TFA limits.</p>

This progress report, the second since the 2018 launch of the REPLACE action package, aims to track and accelerate progress towards the goal of global elimination by 2023. The report:

- Describes the current global, regional and national situations and changes during the past year (since May 2019);
- Tracks progress of key policy outcomes and milestones;
- Discusses challenges and opportunities for future action;
- Highlights enablers and blockers of TFA elimination at the country level; and
- Recommends strategic priorities for the next 12 months to achieve the 2023 target.

In addition, this report highlights countries in each WHO region that have made significant policy advances in the past year.

II. GLOBAL PROGRESS

1. COUNTRY POLICIES

CURRENT SITUATION

Mandatory TFA policies are currently in effect for 2.4 billion people in 32 countries (32% of the global population in 2020). Of these, 14 countries (covering 589 million people – 8% of the global population) have best-practice policies, and two countries (Peru and Uruguay, covering 36 million people), which have less restrictive limits in place, have passed best-practice policies that will come into effect in the next two years. Another 24 countries, covering 779 million people, have also passed best-practice TFA policies that will come into effect within the next two years. Currently, 27 countries have other complementary measures in place, and 62 countries have a national policy, strategy or action plan in place that expresses a commitment to reduce TFA in the food supply. For the remaining 64 countries, there has either been no action to eliminate TFA or the status is unknown.

Fig. 1 shows the status of TFA policy implementation around the world. The map is based on a country performance score card developed by WHO and data from the WHO Global database on the Implementation of Nutrition Action (GINA)². The live map is constantly updated and accessible on the GINA and REPLACE webpages³.

Annex 1 provides country-by-country information on the CHD burden attributable to TFA intake, and the status of TFA policies – both those that are in effect and those that will shortly come into effect. The estimates on CHD burden in Annex 1 are provided by the Institute for Health Metrics and Evaluation (IHME) and are based on data from the Global Burden of Disease (GBD) study 2019, whereas the estimates in the 2019 progress report⁴ were based on data from GBD 2010. Several differences can be seen when the estimates in the current report are compared with those in the 2019 report. For example, the distribution of the TFA-attributable burden of CHD death appears to have become significantly narrower, and many countries appear to have substantially reduced the portion of CHD attributable to TFA. The rankings of countries have also shifted. These differences are mostly due to technical and methodological advances in estimating the burden of disease attributable to TFA intake. Changes made in methodologies used for the analysis in GBD 2019 are described in detail in Annex 2. Because of these advances in methodologies, it is considered that the estimates in Annex 1 more accurately reflect the reality of the worldwide CHD burden attributable to TFA. The changes in methodologies mean that estimates from the 2019 report and the current report cannot be directly compared.

Although these estimates are currently the best available, there are some limitations. For example, the CHD burdens attributable to TFA in this report and the 2019 report are estimates based on modelling rather than actual measurements. Although an increasing number of countries now have data on TFA sales and consumption, there is still a data gap that needs to be filled by assumptions and extrapolations.

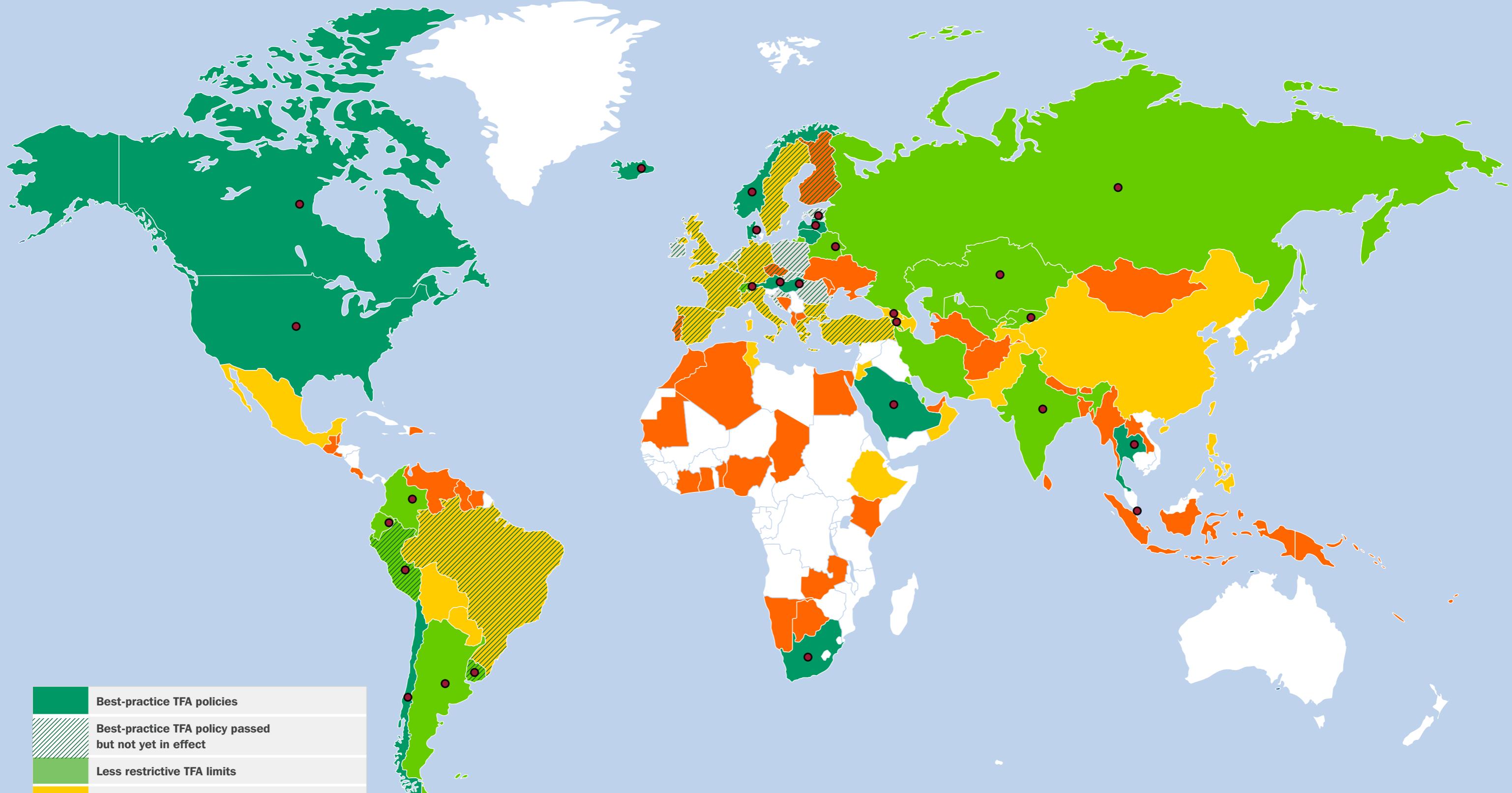
Despite these issues, part of the change between GBD 2010 and GBD 2019 could also reflect actual changes as a result of policy achievements in countries that have introduced a TFA best-practice policy to virtually eliminate industrially produced TFA or ban PHO. TFA consumption has decreased in countries where the oil composition has changed as a result of reformulation after introduction of a best-practice policy. This reinforces the importance of countries pursuing regulations for TFA elimination.

² <http://www.who.int/nutrition/gina/en/>: GINA is an online database of validated information on countries' policies and programme interventions relating to fortification, food labelling, marketing of breast-milk substitutes and nutrition (including TFA).

³ <https://www.who.int/nutrition/topics/replace-transfat>

⁴ <https://apps.who.int/iris/bitstream/handle/10665/331300/9789241516440-eng.pdf>

FIG. 1. TFA POLICY IMPLEMENTATION: MAP OF COUNTRY PERFORMANCE



Note: The map is based on the data available in GINA (as of May 2020). A live and clickable version of the map is available on GINA: <https://extranet.who.int/nutrition/gina/en/scorecard/TFA>

As of May 2020, 14 countries have best-practice TFA policies in effect, and this number is projected to increase to at least 40 in 2022 (Fig. 2). Although good progress has been made, important disparities persist in policy coverage by region and country income level. Most policy actions to date, including those passed in 2019 and 2020, have been in higher-income countries and in the WHO regions of the Americas and Europe: best-practice TFA policies have been adopted by seven upper-middle-income countries⁵ and 33 high-income countries⁶ (Fig. 3). No low-income or lower-middle-income countries have adopted best-practice TFA policies. Supporting low- and middle-income countries to implement best-practice policies is critical to ensure that people in all countries benefit equally from protection from TFA in foods.

FIG. 2. NUMBER OF COUNTRIES WITH BEST-PRACTICE TFA POLICY IMPLEMENTED, BY YEAR

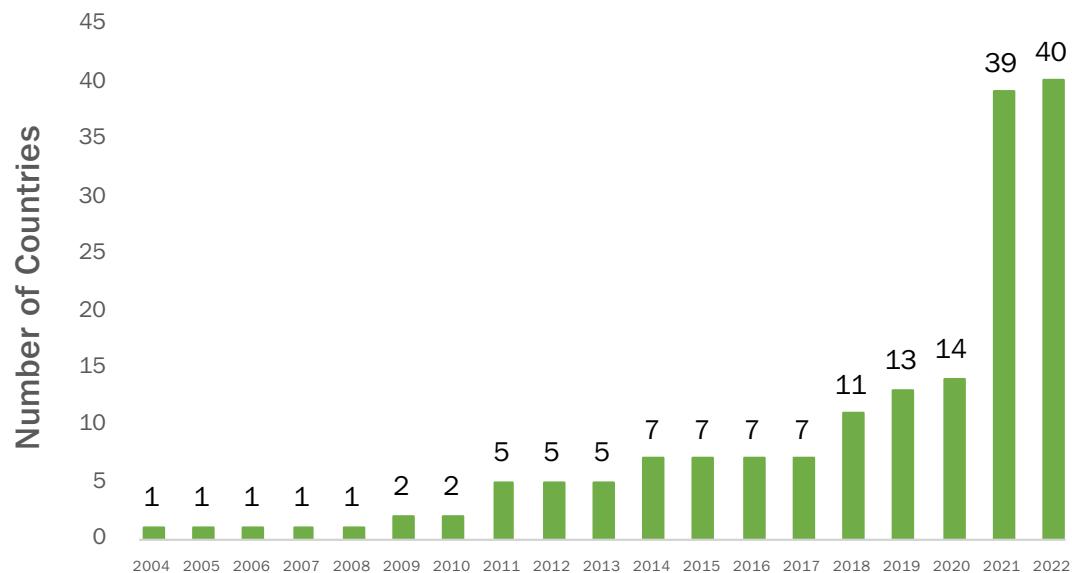
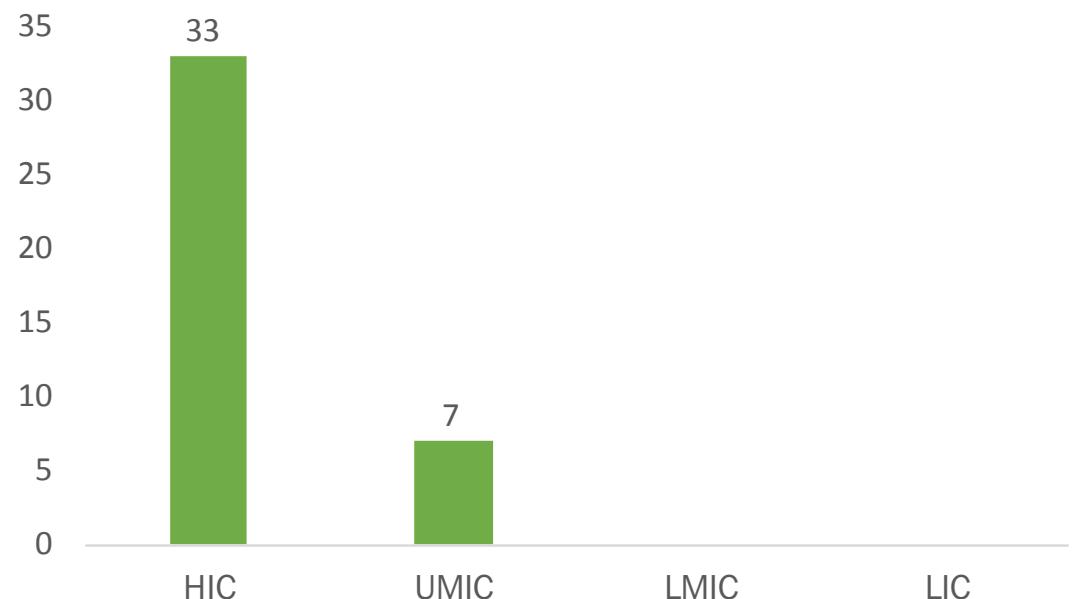


FIG. 3. NUMBER OF COUNTRIES WITH BEST-PRACTICE TFA POLICY PASSED OR IN EFFECT, BY INCOME STATUS



HIC: high-income countries; LIC: low-income countries; LMIC: lower-middle-income countries; UMIC: upper-middle-income countries

⁵ Brazil, Bulgaria, Peru, Romania, South Africa, Thailand, Turkey

⁶ Austria, Belgium, Canada, Chile, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Saudi Arabia, Slovakia, Slovenia, Spain, Sweden, United Kingdom, United States of America, Uruguay

In 2020, within the 13th General Programme of Work Results Framework, WHO developed an indicator that records whether countries have adopted WHO best-practice policies for eliminating industrially produced TFA. The indicator was based on estimated global averages (from IHME data) and represents the proportion of the population who are expected to reduce TFA intake to the level recommended by the WHO guideline (i.e. less than 1% of total energy intake) during the five years following policy implementation (WHO, 2020b).

Table 2 shows the number of people with TFA intake exceeding the WHO recommended level of less than 1% of total energy intake, according to the year when countries' best-practice policies took (or will take) effect. In the 40 countries with a best-practice TFA policy taking effect by 2022, nearly 280 million people are estimated to have an excessive TFA intake before or at the beginning of policy implementation and have the potential to benefit from the protection provided by the best-practice policy. It is estimated that currently 886 million people living in 143 countries without a best-practice TFA policy have TFA intake levels that exceed the WHO recommended level. These 886 million people could potentially be protected if these 143 countries introduced a best-practice policy.

TABLE 2. NUMBER OF PEOPLE WITH TFA INTAKE EXCEEDING THE WHO RECOMMENDED LEVEL

Year of effect of best-practice TFA policy	Countries	Number of people with TFA intake exceeding WHO guideline at time of implementation
Before 2017	Denmark (2004); Austria (2009); Chile, Iceland, South Africa (2011); Hungary, Norway (2014)	2.0 million
2018	Canada, Latvia, Slovenia, United States of America	214 million
2019	Lithuania, Thailand	0.8 million
2020	Saudi Arabia	26,000
2021 (planned)	Belgium, Brazil, Bulgaria, Croatia, Cyprus, Czech Republic, Estonia, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Malta, Netherlands, Peru, Poland, Portugal, Romania, Slovakia, Spain, Sweden, Turkey, United Kingdom	61.7 million
2022 (planned)	Uruguay	1,500
No best-practice policy passed or in effect (not imminent)	Remaining 143 WHO Member States	886 million

Note: 11 countries were not included due to missing data.

NEW IN THE PAST YEAR

Since the first annual progress report in May 2019, there has been significant progress in TFA elimination around the world (Table 3). Best-practice policies came into effect in Lithuania and Saudi Arabia, and a less restrictive TFA limit came into effect in Uruguay. In December 2019, a best-practice policy was passed in Brazil and will come into effect in July 2021. In May 2020, Turkey passed a best-practice TFA limit, which will take effect in 2021.

Two countries notified draft best-practice TFA policies for public comment: India in August 2019, and Nigeria in January 2020. In October 2019, the 35 Member States of the Pan-American Health Organization (PAHO) unanimously approved the Plan of Action for the Elimination of Industrially Produced Trans-Fatty Acids 2020–2025 (PAHO, 2019).

In the past year, there has been an encouraging trend towards countries adopting best-practice TFA policies rather than less restrictive limits. New policy measures passed and introduced have overwhelmingly followed best practice (passed in Brazil and Turkey; drafts introduced in India and Nigeria); and countries that previously had less restrictive measures are updating

policies to align with best practice (passed in Saudi Arabia; draft introduced in India). As well, Singapore officially announced plans to strengthen its existing less restrictive TFA limit (which applies to oils and fats only) to align with global best practice by implementing a ban on PHO (following Canada, Thailand and the United States as models) (Singapore Ministry of Health, 2019).

In the next 12 months, WHO will continue supporting country adoption and implementation of best-practice TFA policies. WHO will also provide support to countries in strengthening their regulatory capacities to help accelerate implementation, compliance monitoring and enforcement of TFA policy actions.

TABLE 3. PROGRESS IN MANDATORY TFA LIMITS SINCE MAY 2019

Best-practice TFA policy			Less restrictive limits
Came into effect	Passed	Draft policy proposed and notified for public comment	Came into effect
Lithuania Saudi Arabia	Brazil Turkey	India ^a Nigeria	Uruguay ^b

^a In 2011, India passed regulations that set a TFA limit of 10% in oils and fats, which was further reduced to 5% in 2015. In December 2018, the Food Safety and Standards Authority of India (FSSAI) proposed reducing this limit to 2% and eliminating industrially produced TFA in the food supply by 2022, a year ahead of the global target. In August 2019, the FSSAI proposed aligning India's regulations with global best practice and notified for public comment draft regulations that apply the 2% TFA limit to all food products by January 2022.

^b Uruguay's policy limits industrially produced TFA to 2% of the total fat content in oils and fats, and to 5% of the total fat in other foods. The policy took effect in November 2019. In a second implementation phase, by May 2022, the 2% limit will apply to all fats, oils and foods (best practice).

2. SUPPORT FOR REFORMULATION

CURRENT SITUATION

Elimination of industrially produced TFA requires the involvement of manufacturers of foods, edible oils and fats. In April 2019, Dr Tedros Adhanom Ghebreyesus, Director-General of WHO, issued a statement calling on fats, oils, and food and food service industries to reformulate foods to eliminate industrially produced TFA and increase replacement with alternatives low in saturated fatty acids (SFA) (WHO, 2019b). In May 2019, member companies of the International Food and Beverage Alliance (IFBA) committed to not exceeding 2 g of industrially produced TFA per 100 g of oils and fats in their products worldwide by 2023 (IFBA, 2019). IFBA companies account for approximately 13% of global packaged food sales (Alexander, Yach & Mensah, 2011). This means that manufacturers of almost 90% of packaged foods globally are not committed to eliminating industrially produced TFA.

Suppliers of edible oils and fats may be even more instrumental than food manufacturers in eliminating industrially produced TFA from the global food supply. Relatively few suppliers of edible oils and fats serve all food manufacturing and service companies – from large multinationals to small and medium-sized enterprises. If industrially produced TFA are removed from oils and fats supplied to food manufacturing and service companies, they will be eliminated from all food products sold to consumers. To date, however, no suppliers have committed to eliminating industrially produced TFA from product lines.

NEW IN THE PAST YEAR

With funding from Resolve to Save Lives, the Global Alliance for Improved Nutrition (GAIN) and the Scaling Up Nutrition (SUN) Business Network initiated a project to provide technical support to small and medium-sized enterprises to reformulate product lines to remove industrially produced TFA (SUN Business Network, 2019). In 2019 and 2020, 25 small and medium-sized enterprises in Nigeria, and 15 in Pakistan received training from IFBA company experts, based on the needs and resources available in each country (GAIN, 2020).

In 2019 and early 2020, a coalition of nongovernmental organizations (American Heart Association, NCD Alliance, Resolve to Save Lives, and World Heart Federation) sent letters to major food companies urging them to take action to protect the health of their consumers by removing industrially produced TFA from global product lines.

In early 2020, discussions began on organizing a meeting for countries of the EAEU to create dialogue between the oils and fats industry and governments; the objectives were to use industry's technical expertise to identify hurdles to achieving a food supply free from industrially produced TFA, and to build a technology roadmap for countries. However, the COVID-19 pandemic has resulted in postponement of this planned meeting. However, given the importance of this dialogue to move towards the target of

eliminating TFA by 2023, the potential to hold a virtual meeting before the end of 2020 is currently being considered.

A priority for the next year will be to engage edible oils and fats suppliers to support a global supply chain that is free from industrially produced TFA, and to ensure that an appropriate accountability mechanism is in place.

3. GLOBAL RESOURCES AND SUPPORT FOR POLICY ACTION

CURRENT SITUATION

WHO is committed to supporting countries to implement the actions of the REPLACE action package. The complete REPLACE action package, including a technical framework and comprehensive implementation resources, is available on the REPLACE webpage.⁷

Ensuring capacity to monitor compliance and enforce TFA regulations is critical to maximizing public health benefits. Some countries (generally higher-income countries) have mandatory labelling – that is, a TFA declaration on nutrient facts panels and/or PHO on the ingredients list – that should ensure compliance with regulations. However, even when labelling requirements are in place, it is important for countries to be able to confirm, through laboratory testing, that companies are complying with the information on the labels.

Many other (generally lower-resourced countries) do not have labelling requirements in place and will need to rely on some laboratory testing of TFA levels to monitor compliance. Further, labelling is not a viable compliance monitoring mechanism in countries where sources of TFA include unpackaged foods. A lack of in-country laboratory capacity for measurement of TFA in foods, especially in lower-resourced countries, can be a barrier to enforcement.

To support country assessments of TFA in foods, WHO convened an expert consultation in October 2018 and released global surveillance protocols in May 2019. These protocols (available on the REPLACE webpage⁸) can be adapted for measuring TFA levels in national food supplies in a range of settings.

NEW IN THE PAST YEAR

To support countries in designing and implementing best-practice TFA policies, a regulatory and legal capacity-building course was developed. The interactive training was delivered in June 2019 for countries in the Eastern Mediterranean Region, and in July 2019 for countries in the Americas Region.

To better understand the laboratory needs in countries, an interlaboratory study (“ring trial”) on measurement of TFA and other fatty acids in selected foods by gas chromatography was undertaken. Fourteen laboratories, representing all WHO regions, are participating in the study, which aimed to assess the level of agreement of results among laboratories. Full analysis of results is under way. The global laboratory protocol for measuring TFA in food have been revised, based on the preliminary findings from this study, to make them more usable for countries.

In many countries, civil society organizations and other nongovernmental organizations have become active around TFA elimination. Groups have developed resources to support REPLACE implementation and policy action in countries, including advocacy briefs, food sampling protocols for measuring TFA, and country case studies (available in the LINKS cardiovascular health toolkit section).⁹ A Knowledge Exchange Network was established in 2019 by NCD Alliance, providing a virtual platform for civil society organizations working on TFA elimination to share experiences, successes and challenges.

In the next year, WHO will accelerate efforts in providing Member States with technical support to strengthen their regulatory and legal capacities for implementing policies to eliminate TFA from their food supplies. WHO also plans to publish the ring trial results and will explore the possibility of identifying laboratories that could become regional hubs for TFA testing in foods.

⁷ <https://www.who.int/nutrition/topics/replace-transfat>

⁸ <https://www.who.int/nutrition/topics/replace-transfat>

⁹ <https://linkscommunity.org/toolkit/trans-fat-elimination>; LINKS is a collaborative effort of WHO, the United States Centers for Disease Control and Prevention through the CDC Foundation, and Resolve to Save Lives (an initiative of Vital Strategies).



III. PROGRESS BY REGION

1. AFRICA

CURRENT SITUATION

The African Region (see Table 4) continues to have only a small number of countries with mandatory TFA limits or other complementary measures. South Africa has had best-practice mandatory TFA limits in foods, oils and fats since 2011. Fourteen countries have adopted national plans on nutrition or noncommunicable diseases (NCDs) that include goals or strategies to eliminate industrially produced TFA.

TABLE 4. SUMMARY OF THE TFA POLICY SITUATION IN THE AFRICAN REGION

National policy commitment to eliminate TFA	Other complementary measures	Less restrictive TFA limits	Best-practice TFA policy	Best-practice TFA policy passed but not in effect (as of May 2020)	Monitoring mechanism for mandatory TFA limits
Algeria, Benin, Botswana, Cabo Verde, Chad, Côte d'Ivoire, Eswatini, Ghana, Kenya, Mauritius, Namibia, Nigeria, Seychelles, Zambia	Ethiopia		South Africa		South Africa

NEW IN THE PAST YEAR

In the past 12 months, TFA policy discussions have begun in several key countries. In Nigeria, a technical working group was established in 2018 to support the Ministry of Health and the Nigerian National Agency for Food and Drug Administration and Control (NAFDAC) in developing the evidence and recommendations around the need for TFA limits. In 2020, NAFDAC notified a draft best-practice TFA policy that limits TFA to 2% of oils and fats in all oils, fats and foods. The policy experience in Nigeria is described in Box 1.

In Ethiopia, in March 2020, parliament passed an excise tax on food products that are known to increase the risk of diabetes and heart disease, including sugar-sweetened beverages, and oils and fats with high levels of SFA or TFA. Under the new tax law, margarine with more than 40% SFA, or more than 0.5% TFA, will be taxed at 50%; and partially or wholly hydrogenated oils and fats with more than 40% SFA, or more than 0.5% TFA, will be taxed at 40%, as will oils and fats whose SFA content is not labelled or is unable to be determined from the label.

In Uganda, the Ministry of Health began developing the Uganda National Food Control Strategic Plan; the situation analysis included a label review to assess TFA levels in popular food products.

Civil society groups in Africa are activating around TFA elimination. LINKS awardees in Tanzania (Muhimbili University of Health and Allied Sciences) and Kenya (International Institute for Legislative Affairs) have begun projects to assess the amount of TFA in the national food supplies, so that they can promote best-practice policies, and replacement with healthier oils and fats.

Because many countries in the African Region have limited resources and regulatory capacities, and the political priority to support TFA elimination is also limited, working at the level of regional trading blocs as entry points may help to accelerate progress in the region. This will be further explored in the next 12 months. Meanwhile, interested countries will continue to be supported in implementing actions to eliminate TFA, including through development of TFA elimination policies.

A regional capacity-building workshop was planned for 2020 to strengthen regulatory capacities of national policy-makers in the region. However, as a result of the COVID-19 pandemic, it has been postponed, perhaps to 2021. Some parts of the planned capacity-building training may be conducted virtually while waiting for the more detailed face-to-face training workshop.

Box 1. Policy experience in Nigeria

Just a year and half after first taking on TFA elimination, the Nigerian Government drafted, announced and notified for public comment a best-practice TFA policy in January 2020; this is an encouraging timeline that underscores the feasibility of the WHO goal of global elimination by 2023. Passage of the best-practice policy is expected by the end of 2020. The success in Nigeria was due to political will within the government – including at NAFDAC, the Federal Ministry of Health and other key agencies – and the central role of civil society in advocating, convening stakeholders and providing legal support on policy provisions throughout the policy process.

POLICY DEVELOPMENT:

In June 2018, NAFDAC proposed fats and oils regulations without any mention of TFA or PHO. Through media monitoring, civil society groups identified this as an opportunity to include TFA limits. In August 2018, the Nigerian Medical Association (NMA) successfully appealed to NAFDAC to extend the deadline for public comment on the proposed fats and oils regulations.

In September 2018, the NMA discussed the importance of TFA elimination with the Minister of Health. At the minister's request, the NMA convened a technical working group on TFA elimination. Participants included representatives of key government agencies, including the Federal Ministry of Health, the Ministry of Budget and National Planning, NAFDAC, the Standards Organization of Nigeria, the Consumer Protection Council and the Nigerian Bureau of Statistics. It also included representatives from WHO and from civil society organizations, including the Nigerian Heart Foundation, the Nutrition Society of Nigeria, the Nigerian Cardiac Society and the Nigerian Council for Women.

With guidance from the technical working group on international best practices for TFA elimination, NAFDAC, in April 2019, published revised fats and oils regulations that would limit TFA content to 2% of oils and fats. The agency also released regulations on pre-packaged food labelling that address TFA and other food components. Civil society proposed areas for improvement to ensure that the policy would meet global best practices and maximize health benefits.

At a strategic meeting with the Acting Minister of Health and civil society advocates in June 2019, the permanent secretary of the Federal Ministry of Health agreed to champion TFA elimination. Understanding the current burden of TFA in the food supply and establishing a baseline for ongoing monitoring were identified as priorities. The following month, research experts from the Global Health Advocacy Incubator trained Nigerian researchers in collecting food samples for TFA testing. NAFDAC also invested in laboratory equipment and staff training to analyse TFA in foods.

In August 2019, NAFDAC's Director General met with WHO and civil society advocates to discuss further improvements to the agency's fats and oils regulations. This led to the reopening of the regulations for public evaluation.

After a period of intense campaigning by civil society advocates to raise public awareness of TFA health harms and build support for TFA regulations, NAFDAC released the revised regulations on fats and oils, as well as on pre-packaged foods, for a 60-day public comment period in January 2020. The updated regulations on fats and oils include a best-practice limit on TFA.

As the Nigerian Government, WHO and civil society worked to advance the regulations, industry also activated around the issue of TFA elimination. In October 2019, an orientation workshop on reformulation of products high in TFA was conducted for small and medium-sized companies. The show of support from local industry reinforced NAFDAC's commitment to implementing the REPLACE action package.

POLICY IMPLEMENTATION:

When regulations are finalized and come into effect (expected to occur in 2021), NAFDAC will design an implementation and enforcement strategy.



2. AMERICAS

CURRENT SITUATION

The Americas Region (see Table 5) continues to make swift progress towards eliminating industrially produced TFA. Before the release of the REPLACE action framework in 2018, mandatory TFA limits were already in place in four countries in the region. Chile has had a best-practice 2% limit for industrially produced TFA in oils and fats that has applied to all foods since 2011; Argentina (2014), Colombia (2013) and Ecuador (2014) all have limits of 2% in oils and fats, and 5% of total fat in all foods.

In 2018, complete bans on PHO came into effect in Canada and the United States, and Peru established a TFA limit of 2% in vegetable oils and margarines, and 5% of total fat in all foods. In 2021, Peru will implement a second phase of the regulations, banning PHO completely. The policy experience in Peru is described in Box 2.

TABLE 5. SUMMARY OF THE TFA POLICY SITUATION IN THE AMERICAS REGION

National policy commitment to eliminate TFA	Other complementary measures	Less restrictive TFA limits	Best-practice TFA policy	Best-practice TFA policy passed but not in effect (as of May 2020)	Monitoring mechanism for mandatory TFA limits
Antigua and Barbuda, Bahamas, Barbados, Belize, Costa Rica, Dominican Republic, Grenada, Guatemala, Guyana, Jamaica, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Suriname, Trinidad and Tobago, Venezuela	Bolivia (Plurinational State of), Brazil, El Salvador, Mexico, Paraguay	Argentina, Colombia, Ecuador, Peru, Uruguay ^a	Canada, Chile, United States	Brazil ^a , Peru, Uruguay	Argentina, Canada, Chile, Colombia, Ecuador, Peru, United States, Uruguay

^a New since May 2019.

NEW IN THE PAST YEAR

In 2019, Uruguay implemented regulations limiting TFA to 2% in vegetable oils and margarines, and 5% in all other foods; in 2022, the 2% limit will be extended to apply to all foods.

In December 2019, Brazil became the sixth country in the Americas Region to pass a best-practice policy (following Canada, Chile, Peru, the United States and Uruguay). Brazil's National Agency of Sanitary Surveillance (ANVISA) adopted regulations setting a 2% limit for industrially produced TFA in all oils and foods (effective July 2021), and banning all PHO (effective January 2023). The policy experience in Brazil is described in Box 3.

In October 2019, Member States in the Americas Region unanimously approved a new plan to reduce cardiovascular disease by eliminating industrially produced TFA from foods by 2025. The Action Plan to Eliminate Trans-Fatty Acids from Industrial Production 2020–2025, approved by the 57th Directing Council of PAHO, promotes best-practice TFA policies (PAHO, 2019).

In the next 12 months, country-level implementation of the action plan will be a priority in the region.

Box 2. Policy experience in Peru

Since 2018, mandatory limits in Peru have capped TFA content at 2% in vegetable oils and fats, and 5% in other processed foods. A best-practice PHO ban is scheduled to take effect in 2021. PAHO's and WHO's recommendations on TFA, Chile's policy implementation and enforcement success, and a PHO ban implemented in the United States and Canada have inspired the adoption of a best-practice TFA elimination policy in Peru.

POLICY DEVELOPMENT:

During the past 10 years, Peru has passed several policies in support of a food supply free from industrially produced TFA. These were motivated by the obligation of the state to promote and protect public health, and by the increasing prevalence of diet-related NCDs, including TFA-related NCDs, and deaths caused by such diseases. The Peruvian Government took its first step towards protecting the people of Peru from TFA in 2010, when the Consumer Defense and Protection Code began requiring declaration of TFA content on food nutrient labels. In 2013, a new law on the promotion of healthy foods for children and adolescents was passed, requiring both front-of-pack warning labels (including on TFA) and issuance of regulations for a gradual reduction of industrially produced TFA in all packaged foods, whether nationally produced or imported, until complete elimination. In July 2016, a follow-up regulation specified a five-year, two-phase process and time frame for elimination of industrially produced TFA.

The first phase came into effect in mid-2018, mandating that TFA in all fats, vegetable oils and margarines oils could no longer exceed 2% of total fat. For all other processed foods and non-alcoholic beverages, the TFA limit was 5%. Five years after signing of the regulation (2021), a complete ban on PHO will become effective, and the limit of industrially produced TFA from non-PHO sources, such as oil refining and processing, will be 2% of fats for all products.

In early 2018, another follow-up regulation stipulated the precise requirements for the prominent front-of-pack warning labels and for their use in advertising of affected products.

Although industry and related actors opposed these sets of regulations and tried to delay their implementation, civil society helped move the process forward by advancing arguments about the proven feasibility of these approaches, the need to protect public health, and the absolute priority of public health over trade and commerce.

Since mid-2019, all products containing any amount of TFA must present a front-of-pack label indicating "CONTAINS TFA"; all related advertisements for products must also feature the warning. Peru was the first country to implement such a policy.

POLICY IMPLEMENTATION:

Compliance with the regulations is monitored through verification of ingredients lists. For imported foods, compliance is enforced through mandatory pre-importation registration, certificates of analysis and importer certification. The burden is on the food industry to demonstrate that the nutrition content of products being imported is in line with the standards in Peru. The National Institute for the Defence of Competition and the Protection of Intellectual Property (Instituto Nacional de Defensa de la Competencia y de la Protección de la Propiedad Intelectual) monitors compliance with the front-of-pack labelling requirement, and reviews labels in supermarkets and at other points of sale; compliance with the regulations is monitored by the General Directorate of Environmental Health (Dirección General de Salud Ambiental).

Penalties for noncompliance with the policy include a ban on sale of the noncompliant product, a fine, closure of the establishment and withdrawal of the health certificate.

Consumers and civil society also contribute to monitoring via a mechanism for filing complaints about violations. To support this monitoring activity, civil society, together with academia, PAHO and WHO, the Ministry of Health and other government entities have formed a standing working group, which meets periodically to evaluate and ensure proper implementation of the healthy food law.

Pre-regulation studies were carried out using a combination of review of ingredients lists for products on the market, and laboratory analyses to verify accuracy of ingredients lists and amounts of TFA. Early post-regulation market studies have shown that front-of-pack signs have resulted in a reduction in sales of products containing TFA and/or excessive amounts of sugars, SFA and/or sodium (Kantar World Panel, 2019).



Box 3. Policy experience in Brazil

Serious efforts to address the negative consequences of industrially produced TFA in foods began in Brazil in the early 2000s. Participation in the South American trade bloc Mercosur (Mercado Común del Sur) spurred Brazil's initial policy action, when Mercosur made labelling for TFA on packaged foods mandatory in 2003. During the past 15 years, Brazil has participated in regional working groups, made pledges and conducted assessments, culminating in the passage of best-practice TFA regulations in December 2019. The regulations will limit TFA to 2% of total fat in all foods by July 2021 and ban PHO by January 2023. Political will to assess and act on the burden of TFA in Brazil, and an activated civil society were key influencers of Brazil's policy success towards TFA elimination.

POLICY DEVELOPMENT:

Brazil was one of the first countries to take policy action against the well-documented harms of TFA. In 2003, the Brazilian National Agency of Sanitary Surveillance (Agência Nacional de Vigilância Sanitária – ANVISA) adopted a Mercosur resolution requiring food manufacturers to report TFA content per serving on the nutrition facts label, unless the amount is 0.2 g per portion or less; in these cases, companies may make claims of “zero trans” or “trans free” on the packaging (ANVISA, 2003).

In 2007, Brazil's Ministry of Health signed a cooperation agreement with the Brazilian Association of Food Industries to promote healthy lifestyles and nutritional diets, including reducing TFA in processed foods (Brasil Ministério da Saúde, 2008). In June 2008, the Ministry of Health and several food and cooking oil industry representatives signed the Trans Fat Free Americas declaration of Rio de Janeiro, pledging to limit industrially produced TFA to 2% of total fat in oils and margarines, and to 5% in processed foods (PAHO, 2008).

Despite these efforts, consumption of TFA in Brazil exceeded the limit recommended by WHO (maximum of 1% of total energy intake). In 2008–2009, the first Brazilian National Dietary Survey assessed the burden of TFA consumption in Brazil. Results revealed that average daily TFA intake was 1.4% of total energy, and that a diet consisting of ultra-processed foods contained eight times more TFA than one made up of fresh and minimally processed foods (Louzada et al., 2015). There was a clear need to take further action.

In 2009, the Ministry of Education approved a resolution to limit TFA in school meal programmes to 1% of total energy. In May 2017, legislation was introduced to ban the use of PHO in the manufacturing of food. ANVISA was allowed to grant exceptions based on technical justifications. The legislation was approved by the Senate and referred to the House of Deputies (Câmara dos Deputados, 2017).

In March 2018, ANVISA announced its intention to examine regulatory options on TFA (ANVISA, 2018). In May 2018, ANVISA hosted a stakeholder meeting to review available TFA research, following the call by WHO to eliminate industrially produced TFA from the global food supply.

ANVISA took several actions over the following months, including releasing a technical report summarizing information on TFA in Brazil, hosting a stakeholder meeting on TFA elimination with civil society and industry representatives, and releasing a timetable for addressing TFA in foods. In July 2019, ANVISA's board of directors released its justification for regulating TFA in foods and approved the launch of a public consultation process on the policy proposal, from 7 August to 7 October 2019.

In parallel, civil society advocates had begun to activate around TFA elimination in early 2019. Advocates assessed ways to support the adoption of TFA policies and strengthen ANVISA's role in regulating TFA in foods, and met with ANVISA representatives advocating for TFA policies. The Brazilian Association of Nutrition (Associação Brasileira de Nutrição – ASBRAN) was the face of civil society advocates working for a TFA policy in Brazil, and coordinated public engagement around ANVISA's consultation process.

ANVISA's public consultation received more than 1200 comments, of which 90% supported the agency's proposal to regulate TFA in foods.

Following a stakeholder meeting in November 2020, ANVISA's board of directors approved a plan to limit TFA to 2% of total fat in all foods by July 2021, and ban PHO from January 2023. On 26 December 2019, ANVISA's TFA regulation (RDC 332/2019) was published in the Official Gazette.

POLICY IMPLEMENTATION:

ANVISA is now developing a strategy for policy monitoring and enforcement. Civil society continues to provide technical support in designing this strategy.

3. EASTERN MEDITERRANEAN

CURRENT SITUATION

The Eastern Mediterranean Region has had some of the highest TFA intake globally (Wang Q et al., 2016). Iran was the first country in the region to regulate TFA, with a 2% limit in oils and fats that became effective in 2016. In 2015, the Gulf Cooperation Council (GCC) approved TFA limits of 2% of total fat in vegetable oils and soft spreadable margarines, and 5% of total fat in other foods. GCC Member States (Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and United Arab Emirates) must each approve implementation of the regulation before it can come into effect in the country.

Of the GCC countries, Bahrain, Kuwait and Saudi Arabia have implemented the regulation, which took effect in 2016, 2017 and 2017, respectively; the implementation process has been initiated in Oman and Qatar. Table 6 summarizes the TFA policy situation in the Eastern Mediterranean Region.

TABLE 6. SUMMARY OF THE TFA POLICY SITUATION IN THE EASTERN MEDITERRANEAN REGION

National policy commitment to eliminate TFA	Other complementary measures	Less restrictive TFA limits	Best-practice TFA policy	Best-practice TFA policy passed but not in effect (as of May 2020)	Monitoring mechanism for mandatory TFA limits
Afghanistan, Egypt, Lebanon, Morocco, Qatar, United Arab Emirates	Jordan, Oman, Pakistan, Tunisia	Bahrain, Iran (Islamic Republic of), Kuwait	Saudi Arabia ^a		Saudi Arabia

^a New since May 2019.

NEW IN THE PAST YEAR

During the past year, interest in TFA elimination in the region has increased. In January 2020, Saudi Arabia implemented a second phase of its TFA policy, banning PHO and becoming the first country in the region with a best-practice policy. The policy experience in Saudi Arabia is described in Box 4. In early 2019, WHO collaborated with the governments of Egypt and Pakistan to assess TFA sources and the levels of TFA in foods (WHO, 2019c). In Pakistan, the Ministry of Health established a Technical Working Group on TFA in September 2019. The group is co-led by the Ministry of Health and WHO, and is working to build support for, and draft, a best-practice policy.

In June 2019, the WHO Regional Office for the Eastern Mediterranean hosted key government representatives from 15 countries (Bahrain, Iraq, Jordan, Kuwait, Lebanon, Libya, Morocco, Oman, Palestine, Pakistan, Qatar, Saudi Arabia, Sudan, Syria, Tunisia) for a legal and regulatory capacity-building workshop. At the workshop, countries learned about best-practice approaches for TFA elimination and began identifying key elements of a regulation for effective elimination in their countries. A key challenge raised during the workshop is the lack of laboratory capacity in the region to conduct TFA testing in foods, which is necessary for monitoring compliance with TFA limits.

In the next 12 months, WHO will continue to support the development of best-practice policies in countries and laboratory capacity-building for TFA analysis in the region.

Box 4. Policy experience in Saudi Arabia

In January 2020, Saudi Arabia became the first country in the Eastern Mediterranean Region and the 14th country in the world to implement a best-practice TFA policy. Saudi Arabia's policy will protect 35 million people from the harms of TFA and will facilitate similar policies in the other GCC countries, covering an additional 24 million people.

Key factors that influenced the successful policy process in Saudi Arabia included positioning the TFA regulations as part of a broader Healthy Food Strategy that was driven by leadership within the Saudi Government, engaging food companies throughout the process to ensure that the policy was implementable and that companies of all sizes were prepared to comply, and engaging WHO and civil society to ensure that the policy approach was based on evidence and successful experiences in other countries (NCD Alliance, 2019).

POLICY DEVELOPMENT:

The Saudi Arabian Food and Drug Administration (SFDA) acted to eliminate TFA from the national food supply to reduce Saudi Arabia's high burden of heart disease. In 2016, 73% of all deaths were from NCDs, of which more than half were cardiovascular diseases (WHO, 2018). Saudis were, on average, consuming TFA in quantities above the WHO recommended limit, and TFA intake was estimated to cause 10% of all heart disease deaths in the country (Wang Q et al., 2016).

In 2017, the SFDA launched a strategic plan for healthy food focused on sugar reduction, fat reduction, salt reduction and calorie display. The strategies in the plan were based on international best practices, scientific literature and WHO recommendations. There was a clear need to reduce TFA in the food supply, and the SFDA sought scientific guidance from the WHO Regional Office for the Eastern Mediterranean on how to achieve this.

No data were available on TFA sources in the Saudi food supply. Because 80% of food in Saudi Arabia is imported, the SFDA looked to data from the United States on sources of TFA, which showed that 79% of TFA comes from industrial sources. Of the TFA from industrial sources, 50% comes from a small selection of food categories (e.g. cakes, cookies, biscuits) (US FDA, 2003).

To gain critical inputs on how to structure regulations, the SFDA held meetings with key stakeholders, including industry, and a committee with members from civil society organizations, academia and WHO. Civil society advocates and academics also provided support through advocacy, communications and evidence generation.

The SFDA started with a regulation for mandatory labelling of TFA, which was passed in June 2015 and came into effect in 2016. In November 2015, a regulation was passed for a TFA limit of 2% in oils and fats, and 5% in other food products. These TFA limits were approved by the GCC Standardization Organization (GSO) and became available for other GCC Member States to adopt in 2015.¹⁰ The limit took effect in Saudi Arabia in November 2017.

To ensure that companies were prepared to comply with the regulations, the SFDA held workshops to facilitate exchange of knowledge and expertise between larger food companies (that have experience in complying with TFA regulations in other countries) and smaller companies. The SFDA also worked with food companies on a voluntary agreement to reduce PHO to 1% by weight in products by 2018 as part of the Healthy Food Strategy.

POLICY IMPLEMENTATION:

In February 2018, the SFDA undertook an inspection campaign and tested TFA levels in samples of 400 foods. Of these, 5% were noncompliant with the TFA limits (NCD Alliance, 2019). To ensure that all industrially produced TFA is removed from the food supply, the SFDA decided to follow global best practices – in particular, the Canadian model – and completely banned the use of PHO in all products. In November 2018, the SFDA replaced the TFA limit with a PHO ban, which became effective in January 2020.

The SFDA plans to undertake another inspection campaign in early 2020 to monitor compliance with the PHO ban. There are no laboratory methods for measuring PHO in foods, so the SFDA is working with Health Canada and the private sector to develop its compliance monitoring approach. Saudi Arabia also intends to develop a plan for evaluating the health impacts of the policy.

Pending GSO approval, Saudi Arabia's PHO ban will be available for other GCC Member States to adopt, extending the benefits of the years of policy development by the SFDA and other stakeholders.

¹⁰ The GSO has the role of unifying standards across the region. Whenever a GCC Member State drafts a regulation, it must go to GSO members for review and approval. Upon GSO approval, Member States must individually adopt the GSO regulation.

4. EUROPE

CURRENT SITUATION

The European Region (see Table 7) has the largest number of mandatory TFA limits in place and has had the most policy progress of all WHO regions since 2019. Since Denmark's pioneering effort (2004), Austria (2009), Iceland (2011), Hungary (2014), Norway (2014), Latvia (2018) and Slovenia (2018) have passed similar best-practice regulations. Switzerland, one of the first countries in Europe to take legal action to restrict TFA, has a TFA limit in oils and fats (2008).

Regional regulations, covering 34 countries, will contribute immensely to Europe's success in TFA elimination. From January 2018, a regulation that limits TFA to 2% in oils and fats came into effect in EAEU countries, including Armenia, Belarus, Kazakhstan, Kyrgyzstan and the Russian Federation; this regulation strengthened the less restrictive limits that had been in place since 2015. Currently, there are still challenges for implementation of the EAEU regulations in these five countries; the major reason cited for this during a meeting hosted by the WHO Regional Office for Europe in February 2019 is the lack of laboratory capacity for TFA testing.

In April 2019, the EU passed regulations, which will be effective from 2021, to limit industrially produced TFA to 2 g of TFA per 100 g of total fat in all food products; this will be directly applicable in all the Member States of the EU, as well as the European Economic Area (EEA).

TABLE 7. SUMMARY OF THE TFA POLICY SITUATION IN THE EUROPEAN REGION

National policy commitment to eliminate TFA	Other complementary measures	Less restrictive TFA limits	Best-practice TFA policy	Best-practice TFA policy passed but not in effect (as of May 2020)	Monitoring mechanism for mandatory TFA limits
Albania, Bosnia and Herzegovina, Czech Republic, Finland, Malta, Portugal, Republic of Moldova, The former Yugoslav Republic of Macedonia, Turkmenistan, Ukraine	Azerbaijan, Belgium, Bulgaria, France, Germany, Greece, Israel, Italy, Spain, Sweden, Tajikistan, Turkey, United Kingdom	Armenia, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Russian Federation, Switzerland ^a , Uzbekistan	Austria, Denmark, Hungary, Iceland, Latvia, Lithuania, Norway, Slovenia	EU and EEA (21 countries ^b), Turkey, United Kingdom	Armenia, Austria, Belarus, Denmark, Georgia, Hungary, Iceland, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Norway, Russian Federation, Switzerland

^a Switzerland was one of the first countries in Europe to take legal action to restrict TFA.

^b Member States of the EU adopted a best-practice policy, but food that does not comply with the policy may continue to be placed on the market until 1 April 2021. Austria, Denmark, Hungary, Latvia, Lithuania and Slovenia in the EU, and Iceland and Norway in the EEA already have a best-practice policy in effect, and therefore they are not included in the 21 countries.

A few countries have managed to achieve substantial reduction of TFA through voluntary regulations (Box 5). These successes were in countries that were able to hold stakeholders accountable through strong government leadership, a strong monitoring system and data. Experiences in several other countries have demonstrated that mandatory approaches are generally much more effective than voluntary approaches, and therefore regulatory measures and enforcement of mandatory TFA limits are recommended.



Box 5. Policy experience in the United Kingdom and the Netherlands

The official United Kingdom (UK) recommendation for overall consumption of total fats is that they should comprise no more than 35% of daily calorie intake. Within this, SFA should form no more than 11%, and TFA no more than 2%, of total energy intake (Public Health England, 2015).

The latest National Diet and Nutrition Survey (2018) indicated that average intakes of TFA (natural and industrially produced) in the UK were below the WHO recommendation of less than 1% of total energy intake, ranging between 0.4% and 0.6% of total energy intake (Public Health England, 2018).

In the UK, there is no legal ban on industrially produced TFA, but in 2012 most supermarkets, many manufacturers and the bigger fast food chains agreed to sign up to the voluntary Public Health Responsibility Deal agreement to remove and not use industrially produced TFA (UK Department of Health, 2014). Through the combined efforts of the food industry, industrially produced TFA have been largely removed from food products.

Similarly, the Netherlands has achieved substantial reduction in industrially produced TFA in the food supply chain since 2003 via the Dutch Task Force for the Improvement of the Fatty Acid Composition (TFIFAC). TFIFAC members include major buyers and suppliers of vegetable oils and fats in a range of product categories. The initiative prompted manufacturers to reformulate and lower the industrially produced TFA content of products (Rippin et al., 2017).

NEW IN THE PAST YEAR

In May 2020, Turkey published in its official gazette new best-practice regulations to limit industrially produced TFA to 2 g per 100 g of the total oil in the foods supplied to retail outlets and consumers. The regulations will take effect from 2021. Because of the trade relations between Turkey and the EU, Turkey's policy is well aligned with that of the EU.

To address challenges with implementing the existing EAEU TFA policy, the WHO Regional Office for Europe organized a laboratory capacity-building workshop in November 2019 in which Member States were trained in fatty acids analysis of foods. In early 2020, the Regional Office for Europe also initiated a programme of work to bring together major suppliers of edible oils and fats, and government and regulatory representatives in EAEU countries to develop technology roadmaps for discontinuing the use of industrially produced TFA in the food supply. The policy experience in the EAEU is described in Box 6.

In the next 12 months, WHO will continue supporting implementation of existing regulations in EAEU countries, including building laboratory capacity, and engaging oils and fats suppliers on technical solutions. WHO will leverage the recently passed EU regulations to encourage additional countries in the region to pass policies.

Box 6. Policy experience in the Eurasian Economic Union

Removing TFA from the food supply in the EAEU is potentially one of the most effective public health interventions for reducing NCD risks for the region's population of 176 million. The EAEU works in collaboration with the WHO European Office for the Prevention and Control of NCDs in Moscow on this topic, and several activities take place in the EAEU member countries (Armenia, Belarus, Kazakhstan, Kyrgyzstan and the Russian Federation). The EAEU was the first trade bloc globally to restrict TFA, with a 20% TFA limit in specific fat products that came into effect in January 2015. A stricter 2% TFA limit in oils and fats came into effect in January 2018.

POLICY DEVELOPMENT:

In January 2018, technical regulations of the EAEU Customs Union, *Technical regulations for oil and fat products*, came into full force after a seven-year transition period. The regulations state that TFA in a fixed list of vegetable oil and animal fat products should comprise no more than 2% of the fat content in the product. Previously, permissible levels were 8–20% of fat content.¹¹

The regulations establish requirements for packaging, labelling, production, storage, transportation and sale of oil and fat products released into circulation in the territory of all Member States. They contain legal requirements for permissible levels of safety indicators in oil and fat products.

Since the regulations came into effect, the permissible levels have been reduced to coincide with the WHO recommendations. The previous regulations, from January 2015, allowed industrially produced TFA to comprise 20% of the fat content of solid margarines and specialty fats. With the amendments in January 2018, permissible levels of industrially produced TFA for these products were reduced to 2% of the fat content. A similar reduction for milk fat replacers, soft and liquid margarines, specialty fats, vegetable oil-cream spreads, and other vegetable oil and fat products, from 8% to 2% of fat content, became effective in January 2018.

POLICY IMPLEMENTATION:

The less restrictive TFA limits in effect in EAEU countries are not currently being implemented. If the interventions were fully implemented, a decrease in the TFA content of all foods and a decrease in disease burden caused by the intake of TFA in EAEU Member States would be expected.

Awareness about the burden of disease caused by TFA intake among policy-makers, producers, suppliers and the public needs to increase, to increase support for development and implementation of legislative and regulatory actions, and enforcement of compliance with legal provisions on TFA.

The need to replace TFA with healthier oils and fats requires further discussion among professionals, public institutions, producers and other stakeholders in EAEU Member States. The priorities are to emphasize the need to replace TFA with healthier oils and fats in EAEU Member States, and to ensure full implementation of existing EAEU regulations. This includes harmonizing with the WHO recommendations and best practice to implement a permissible industrially produced TFA limit of 2% in all processed oils and fats, dairy products and other foods, including imported products. Regulations need to be comprehensive and consistent across the region. There is also a need to build capacity for monitoring and enforcement for both fieldwork methods and laboratory protocols.

The WHO European Office for the Prevention and Control of NCDs in Moscow and the Eurasian Economic Commission organized a training workshop for laboratory staff of Member States to harmonize the methods for TFA analysis in national-level laboratories. The first workshop was conducted in November 2019, and capacity-building programmes will continue in this area.

Evaluation of the impact of this policy is crucial. Most of the Member States in this region did not have any published data on the TFA levels in food. The FeedCities project¹² conducted by the WHO European Office for the Prevention and Control of NCDs has provided baseline data to describe the problem and allow monitoring of progress.

Collaboration between governments, public health professionals and the private sector is key to ensuring implementation success.

¹¹ <http://www.eurasiancommission.org/ru/nae/news/Pages/15-03-18-1.aspx>

¹² <https://www.euro.who.int/en/countries/kyrgyzstan/publications/feedcities-project.-the-food-environment-description-in-cities-in-eastern-europe-and-central-asia-kyrgyzstan-2017>



5. SOUTH-EAST ASIA

CURRENT SITUATION

The South-East Asia Region (see Table 8) has seen relatively slow but growing interest in regulating TFA. India has had less restrictive limits in effect since 2013. In January 2019, Thailand took an important step by putting in place a ban on PHO, becoming the third country in the world to do so, following the PHO ban introduced in Canada and the United States (Thailand Ministry of Public Health, 2018). The policy experience in Thailand is described in Box 7.

TABLE 8. SUMMARY OF THE TFA POLICY SITUATION IN SOUTH-EAST ASIA

National policy commitment to eliminate TFA	Other complementary measures	Less restrictive TFA limits	Best-practice TFA policy	Best-practice TFA policy passed but not in effect (as of May 2020)	Monitoring mechanism for mandatory TFA limits
Bangladesh, Bhutan, Indonesia, Maldives, Myanmar, Nepal, Sri Lanka, Timor-Leste		India	Thailand		India, Thailand

NEW IN THE PAST YEAR

In 2019, India notified draft best-practice regulations that would reduce the current regulatory limit for industrially produced TFA from 5% in oils and fats to 2%, and expand the limit to apply to all fats, oils and foods.

Several countries in the region have also begun implementing strategies outlined in the REPLACE action package and best-practice policies. In Bangladesh, the Bangladesh Standards and Testing Institute is in the process of developing a TFA standard. In Sri Lanka and Maldives, the Regional Office for South-East Asia has engaged with policy-makers and completed policy landscapes; assessments of TFA in foods are under way. In 2020, programmes were initiated in Bhutan and Nepal to assess the dietary sources and consumption of TFA, and evaluate the policy landscape on edible oils and fats to inform the policy process to eliminate TFA from the food supply.

A regional capacity-building workshop was planned for 2020 to strengthen regulatory capacities of national policy-makers in the region. However, as a result of the COVID-19 pandemic, it has been postponed, perhaps to 2021. Some parts of the planned capacity-building training may be conducted virtually while waiting for the more detailed face-to-face training workshop.

In the next 12 months, WHO will support strengthening of regulatory capacities, including laboratory capacities, in countries. WHO will also continue to provide technical support to interested countries for their assessments, and advocate for implementation of best-practice regulations.

Box 7. Policy experience in Thailand

Thailand implemented a ban on PHO in January 2019, largely as a preventive measure. The Thai Government worked with the small number of PHO producers in the country to change their manufacturing processes and ensure that replacements were available. Effective collaboration between academia, the Thai Food and Drug Administration (FDA), civil society and industry was instrumental in banning PHO in Thailand (NCD Alliance, 2019).

POLICY DEVELOPMENT:

Assessments of TFA levels in foods in Thailand, conducted by research and government agencies in 2006, 2007 and 2014, showed that TFA consumption in the Thai population was relatively low; foods such as fried doughnuts, margarines, puffs and pastries, had the highest TFA content (Chavasit et al., 2019). With the increase in consumption of these types of foods, TFA in Thailand were becoming a greater problem. Thai FDA officials were alarmed to learn that multinational food companies that sold products with a TFA-free claim in countries with TFA policies in place were selling products containing TFA in Thailand (NCD Alliance, 2019). The Thai FDA decided that it was critical to restrict TFA as a preventive measure.

TFA policy action in the United States, where the US Food and Drug Administration announced its PHO ban in 2015, served as a model for Thai officials.

The Thai FDA held stakeholder meetings, including with researchers, food manufacturers and importers, to determine the best policy approach. The food industry could use oil blending techniques to develop PHO replacements by mixing highly saturated and/or fully hydrogenated oils with less saturated oils.

Information from the food industry, collected in a survey administered in 2017 by the Thai FDA in collaboration with Mahidol University, indicated that most PHO used in the country were produced in only three oil manufacturing plants where hydrogenation facilities were available. This led Thai officials to focus on PHO as the target of their policy, rather than TFA more broadly.

After making tentative policy decisions and notifying member countries at the World Trade Organization, the Thai FDA held a public hearing. At the public hearing, consumers, food producers, importers, academia and other government agencies demonstrated broad support for the PHO ban, citing the uncontested health harms of TFA and the availability of healthier replacements in Thailand.

In July 2018, Thailand's Minister of Public Health issued the final notification prohibiting the production, import or sale of PHO and foods containing PHO in Thailand. The policy took effect in January 2019.

POLICY IMPLEMENTATION:

Between July 2018 and January 2019, the Thai FDA educated consumers, manufacturers and importers on the new regulation to ensure that these key stakeholders were prepared to comply.

The Thai FDA enforces the regulation via laboratory testing of food products. There is no laboratory method for testing for the presence of PHO, so researchers from Mahidol University have proposed the criteria shown in the table for the Thai FDA to use for monitoring (Chavasit et al., 2019).

FOOD CATEGORY		TRANS FAT LIMIT	TRANS FAT-FREE CLAIM
Food products other than mentioned below	All Kinds	Not more than 0.5 g/serving	TFA ≤0.5 g/serving and SFA ≤5 g/serving
Ruminant products	Butter/butter oil	<6%	
	Blended fat/oil product (e.g. butter blend)	<2%	
	Others	Not more than 0.5 g/serving	
Fat and oils other than ruminant products	Refined cooking oils	<2%	
	Margarine/shortening	<2%	

Given budget constraints, the Thai FDA is collaborating with civil society on monitoring and enforcement. Civil society organizations are helping by identifying products that are not in compliance and educating stakeholders about the regulation.



6. WESTERN PACIFIC

CURRENT SITUATION

The Western Pacific Region (see Table 9) has seen relatively little action on TFA elimination. However, some key countries have begun regulatory processes, which may spur broader interest in the region. Singapore is currently the only country in the region with TFA limits, which have been in place since 2012 and apply to oils and fats only.

TABLE 9. SUMMARY OF THE TFA POLICY SITUATION IN THE WESTERN PACIFIC REGION

National policy commitment to eliminate TFA	Other complementary measures	Less restrictive TFA limits	Best-practice TFA policy	Best-practice TFA policy passed but not in effect (as of May 2020)	Monitoring mechanism for mandatory TFA limits
Cambodia, Fiji, Lao People's Democratic Republic, Mongolia, Nauru, Papua New Guinea, Samoa, Vanuatu	Brunei Darussalam, China, Philippines, Republic of Korea	Singapore			Singapore

NEW IN THE PAST YEAR

Since May 2019, TFA has become an important part of public health debates in Singapore and the Philippines. In the Philippines, the Department of Health (DOH) is finalizing the Administrative Order to accelerate actions in eliminating TFA, and a Bill on TFA elimination was filed in Congress in July 2020. The DOH administrative issuance specifies the roles and responsibilities of DOH and its attached agencies. In Singapore, the Ministry of Health announced in June 2019 that PHO will be banned in all foods sold in Singapore, including fats, oils and pre-packaged foods, from June 2021 (Singapore Ministry of Health, 2019). This is an amendment to the existing TFA limit in oils and fats only. The policy experience in Singapore is described in Box 8.

In the next 12 months, WHO is planning to provide technical support to interested countries in implementing actions to eliminate TFA, including developing policies for TFA elimination.



Box 8. Policy experience in Singapore

Excessive TFA intake is a public health concern in Singapore, especially among young working adults. In 2004, a national nutrition survey found that 3 in 10 Singapore residents aged 18–69 years old exceeded the WHO limit for TFA intake of no more than 2.2 g a day (assuming a 2000 calorie diet). Two thirds of these people were young adults aged 18–39 years, of whom 10% had levels of TFA intake more than double the recommended limit.

Unlike many countries where the main source of TFA is from PHO used for deep-frying of fast food, local analysis showed that the key source of TFA is shortening used for making commercial baked items such as cakes, pastries, doughnuts, biscuits and snacks.¹³ These products contribute to 60% of the TFA intake in Singapore.

In response to the WHO advice, Singapore has taken a two-phase approach to limit TFA in the food supply: limits on the TFA levels in oils and fats sold in Singapore, followed by ban on the use of PHO as an ingredient in food products.

In 2013, Singapore introduced legislation to limit TFA to no more than 2 g per 100 g for all oils and fats (including shortening) sold in the retail setting, and supplied to local food manufacturers and food and beverage retailers. This legislation also mandated labelling of TFA levels on the packaging on these products. The legislation has led to a significant reduction in TFA consumption, from an average daily intake of 2.1 g in 2010 to 1.0 g in 2018.

However, TFA remain a cause for concern among certain population segments, especially young adults and the ethnic minority, whose diet is seeing growing prevalence of pre-packaged snacks and baked goods, a key source of PHO. In 2019, in line with WHO's call for countries to eliminate industrially produced TFA in diets, Singapore announced that PHO would be prohibited as an ingredient across all product categories after June 2021. Before the decision was made, intensive consultations were held with a diverse range of stakeholders, including importers, distributors, manufacturers and retailers of products to evaluate the impact such a ban would have on the industry. The stakeholders consulted understood the rationale for the proposed ban in terms of positive health outcomes, and committed their support. Given the readily available PHO-free alternatives such as sunflower and canola oil, they also recognized that reformulation could be readily achieved at minimal cost.

To accelerate reformulation efforts and to ensure a smooth transition before the ban takes effect, Singapore successfully worked with six companies, which together represent 50% of the market share across the four high-risk food categories (snacks, baked goods, prepared meals and fat spreads), to pledge that their products would be PHO-free by June 2020, one year ahead of the ban. This aims to produce positive competition, which encourages other companies to accelerate their reformulation.

As part of monitoring and surveillance, Singapore will carry out periodic checks on high-risk and imported pre-packaged foods (e.g. snacks, baked goods). Singapore will also conduct laboratory testing to monitor changes in TFA in the food supply.

With the ban coming into effect from June 2021, Singapore will be the first country in the Western Pacific Region to eliminate industrially produced TFA in foods.

¹³ Commercially prepared meals in food outlets such as hawker centres in Singapore usually do not contain significant amounts of TFA because they are prepared using palm oil, which has good stability and does not need to be hydrogenated.

IV. GLOBAL CHALLENGES, OPPORTUNITIES AND PRIORITIES

Despite growing country action and interest to act on TFA elimination, there is still a long way to go to meet the WHO goal of global elimination by 2023. Common challenges identified in eliminating TFA are described below, as well as opportunities and priority areas for overcoming the challenges and accelerating action in TFA elimination. Many of these challenges were first identified in the 2019 global progress report.

Lack of regulatory capacities

Policies that effectively remove TFA from food supplies must be enforceable and sustainable. In countries with limited human and financial resources, this can be challenging. Many countries have sizeable informal food sectors that are largely unregulated and for which there may be no existing enforcement infrastructure to build on. In collaboration with partners and technical experts, WHO developed a training curriculum to strengthen countries' regulatory capacities to develop effective policy measures for TFA elimination. Ongoing technical support to countries will provide clear guidance on enforcement options that are accessible at different resource levels.

Lack of laboratory capacities

Initiating policy dialogue and action often relies on an understanding of the in-country burden due to TFA, and gaining this understanding requires food sampling and laboratory testing. In 2019, WHO released guidance materials and draft protocols to support countries and national laboratories in assessing TFA in foods (available on the WHO REPLACE webpage¹⁴). These materials were revised in 2020, as laboratories often require additional financial and technical support to accurately measure TFA.

Identifying laboratories in each region that have demonstrated capacities for analysing fatty acids in foods is critical. Using these laboratories and their expertise to support laboratory testing in neighbouring countries is an area to explore.

Lack of accurate and reliable TFA data

Many countries do not have data on TFA levels in foods or population TFA intake. Without data, TFA elimination is often not a priority issue for investment of time and resources. Designing and conducting studies also requires investment. To address this issue, WHO will continue to advocate for TFA elimination with policy-makers. This will include framing TFA elimination as a preventive measure to avoid vulnerability to the harms of TFA, as a priority action to promote healthy diets, and as part of a broader NCD prevention initiative. WHO will also provide technical support to countries in conducting studies to help spur policy discussions.

Civil society, academics, and advocates for nutrition and cardiovascular health also have an important role in building public debate and political will.

¹⁴ www.who.int/nutrition/topics/replace-transfat/

V. CONCLUSION AND RECOMMENDATIONS FOR ACTION

The momentum for TFA elimination has continued to build as more countries have taken action and advanced policies to eliminate TFA. However, most countries do not have policies in place to protect their citizens from the harmful effects of TFA, and there is much work to be done to meet the WHO goal of global elimination by 2023.

In the coming year, WHO recommends that countries focus on the following action areas.

- Develop and implement best-practice policies to set TFA limits or to ban PHO.
- Invest in monitoring mechanisms, such as laboratory capacity to measure TFA content in foods.
- Advocate for regional or subregional regulations to expand the benefits of TFA policies.

WHO will strengthen its support to countries working to eliminate TFA by the following activities.

- Continue to provide technical support for building regulatory capacities to accelerate best-practice policy development, implementation and enforcement in countries. This includes strengthening laboratory capacity to assess TFA content in foods.
- Disseminate country experiences, success stories and good practices, and recognize achievements by countries.
- Undertake global advocacy through existing and newly developed frameworks and initiatives such as the World Health Assembly, the United Nations Decade of Action on Nutrition, and the United Nations Food System Summit.

WHO expects food and beverage industry groups to implement the commitments they have made to eliminate industrially produced TFA from product lines. WHO also expects major suppliers of oils and fats to step up to remove industrially produced TFA from the products that are sold to food manufacturers globally.



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ANNEX 1

TFA BURDEN AND STATUS OF TFA POLICIES BY COUNTRY, RANKED BY PROPORTION OF CORONARY HEART DISEASE DEATHS DUE TO TFA INTAKE

Country	Proportion of CHD deaths (%) due to TFA intake (>0.5% energy) ^a	Score ^b	Details of implemented policy	Notes
Egypt	8.39	1	National policy commitment to eliminate TFA	
United States of America	7.57	4	Mandatory national ban on PHO	Monitoring mechanism for mandatory TFA limits
Iran (Islamic Republic of)	6.96	3	2% industrially produced TFA limit in oils and fats only	
Latvia	6.14	4	Mandatory national limit (industrially produced TFA <2 g/100 g total oils and fats in all foods)	Monitoring mechanism for mandatory TFA limits
Mexico	5.82	2	Mandatory limits on industrially produced TFA in foods in specific settings; reformulation	
Azerbaijan	5.81	2	Reformulation	
Canada	5.65	4	Mandatory national ban on PHO	Monitoring mechanism for mandatory TFA limits
Ecuador	4.97	3	2% industrially produced TFA limit in oils and fats only	Monitoring mechanism for mandatory TFA limits
Pakistan	4.94	2	Mandatory limits on industrially produced TFA in foods in specific settings	
Republic of Korea	4.76	2	Reformulation	
India	4.63	3	5% industrially produced TFA limit in oils and fats	Monitoring mechanism for mandatory TFA limits
Slovenia	4.56	4	Mandatory national limit (industrially produced TFA <2 g/100 g total oils and fats in all foods)	Monitoring mechanism for mandatory TFA limits
Bhutan	4.45	1	National policy commitment to eliminate TFA	
Bangladesh	4.41	1	National policy commitment to eliminate TFA	
Nepal	4.38	1	National policy commitment to eliminate TFA	

Country	Proportion of CHD deaths (%) due to TFA intake (>0.5% energy)^a	Score^b	Details of implemented policy	Notes
Australia	4.27	–	–	
Peru	3.96	3	2% industrially produced TFA limit in oils and fats, and 5% limit in other foods	Monitoring mechanism for mandatory TFA limits; best-practice TFA policy passed but not yet in effect
Bolivia (Plurinational State of)	3.95	2	Front-of-pack labelling system that includes TFA; reformulation	
Netherlands	3.81	–	–	Best-practice TFA policy passed but not yet in effect
Estonia	3.53	–	–	Best-practice TFA policy passed but not yet in effect
Costa Rica	3.52	1	National policy commitment to eliminate TFA	
Venezuela (Bolivarian Republic of)	3.51	1	National policy commitment to eliminate TFA	
Slovakia	3.32	–	–	Best-practice TFA policy passed but not yet in effect
New Zealand	3.25	–	–	
El Salvador	3.20	2	Mandatory limits on industrially produced TFA in foods in specific settings	
Honduras	3.15	–	–	
Nicaragua	3.12	–	–	
Lithuania	3.12	4	Mandatory national limit (industrially produced TFA <2 g/100 g total oils and fats in all foods)	Monitoring mechanism for mandatory TFA limits
Germany	3.10	2	Reformulation	Best-practice TFA policy passed but not yet in effect
Panama	3.09	–	–	
United Kingdom	3.06	2	Reformulation	Best-practice TFA policy passed but not yet in effect

Country	Proportion of CHD deaths (%) due to TFA intake (>0.5% energy)^a	Score^b	Details of implemented policy	Notes
Switzerland	2.89	3	2% industrially produced TFA limit in oils and fats only	Monitoring mechanism for mandatory TFA limits
Belgium	2.77	2	Reformulation	Best-practice TFA policy passed but not yet in effect
Georgia	2.66	3	2% industrially produced TFA limit in oils and fats only	Monitoring mechanism for mandatory TFA limits
Philippines	2.64	2	Mandatory declaration of TFA on nutrition labels	
Afghanistan	2.64	1	National policy commitment to eliminate TFA	
United Arab Emirates	2.60	1	National policy commitment to eliminate TFA	
Brazil	2.58	2	Mandatory declaration of TFA on nutrition labels; reformulation	Best-practice TFA policy passed but not yet in effect
Paraguay	2.57	2	Mandatory declaration of TFA on nutrition labels	
Libya	2.55	–	–	
Kuwait	2.52	3	2% industrially produced TFA limit in oils and fats, and 5% limit in other foods	
Sudan	2.51	–	–	
Yemen	2.51	–	–	
Hungary	2.50	4	Mandatory national limit (industrially produced TFA <2 g/100 g total oils and fats in all foods)	Monitoring mechanism for mandatory TFA limits
Qatar	2.47	1	National policy commitment to eliminate TFA	
Oman	2.46	2	Reformulation	
San Marino	2.45	–	–	
Bahrain	2.43	3	2% industrially produced TFA limit in oils and fats, and 5% limit in other foods	
Monaco	2.43	–	–	

Country	Proportion of CHD deaths (%) due to TFA intake (>0.5% energy)^a	Score^b	Details of implemented policy	Notes
Jordan	2.42	2	Mandatory declaration of TFA on nutrition labels; reformulation	
Iraq	2.42	—	—	
Syrian Arab Republic	2.41	—	—	
Denmark	2.41	4	Mandatory national limit (industrially produced TFA <2 g/100 g total oils and fats in all foods)	Monitoring mechanism for mandatory TFA limits
Haiti	2.40	—	—	
Colombia	2.39	3	2% industrially produced TFA limit in oils and fats, and 5% limit in other foods	Monitoring mechanism for mandatory TFA limits
Morocco	2.38	1	National policy commitment to eliminate TFA	
Republic of Moldova	2.33	1	National policy commitment to eliminate TFA	
Guatemala	2.32	1	National policy commitment to eliminate TFA	
Jamaica	2.31	1	National policy commitment to eliminate TFA	
Belize	2.30	1	National policy commitment to eliminate TFA	
Brunei Darussalam	2.29	2	Front-of-pack labelling system that includes TFA; reformulation	
Guyana	2.29	1	National policy commitment to eliminate TFA	
Bahamas	2.29	1	National policy commitment to eliminate TFA	
Suriname	2.27	1	National policy commitment to eliminate TFA	
Antigua and Barbuda	2.27	1	National policy commitment to eliminate TFA	
Trinidad and Tobago	2.26	1	National policy commitment to eliminate TFA	

Country	Proportion of CHD deaths (%) due to TFA intake (>0.5% energy)^a	Score^b	Details of implemented policy	Notes
Saint Vincent and the Grenadines	2.26	1	National policy commitment to eliminate TFA	
Barbados	2.24	1	National policy commitment to eliminate TFA	
Saint Lucia	2.24	1	National policy commitment to eliminate TFA	
Grenada	2.24	1	National policy commitment to eliminate TFA	
Dominica	2.23	–	–	
Cuba	2.23	–	–	
Saint Kitts and Nevis	2.16	1	National policy commitment to eliminate TFA	
Czech Republic	2.10	1	National policy commitment to eliminate TFA	Best-practice TFA policy passed but not yet in effect
Portugal	2.08	1	National policy commitment to eliminate TFA	Best-practice TFA policy passed but not yet in effect
Albania	2.08	1	National policy commitment to eliminate TFA	
France	2.07	2	Reformulation	Best-practice TFA policy passed but not yet in effect
Romania	2.06	–	–	Best-practice TFA policy passed but not yet in effect
Belarus	2.05	3	2% industrially produced TFA limit in oils and fats only	Monitoring mechanism for mandatory TFA limits
Serbia	2.04	–	–	
Montenegro	2.04	–	–	
Russian Federation	2.03	3	2% industrially produced TFA limit in oils and fats only	Monitoring mechanism for mandatory TFA limits
Bulgaria	2.00	2	Reformulation	Best-practice TFA policy passed but not yet in effect

Country	Proportion of CHD deaths (%) due to TFA intake (>0.5% energy) ^a	Score ^b	Details of implemented policy	Notes
Greece	1.96	2	Mandatory limits on industrially produced TFA in foods in specific settings	Best-practice TFA policy passed but not yet in effect
Mongolia	1.95	1	National policy commitment to eliminate TFA	
Iceland	1.95	4	Mandatory national limit (industrially produced TFA <2 g/100 g total oils and fats in all foods)	Monitoring mechanism for mandatory TFA limits
Cyprus	1.92	–	–	Best-practice TFA policy passed but not yet in effect
Andorra	1.92	–	–	
Tajikistan	1.90	2	Reformulation	
Turkmenistan	1.90	1	National policy commitment to eliminate TFA	
Luxembourg	1.88	–	–	Best-practice TFA policy passed but not yet in effect
Ukraine	1.87	1	National policy commitment to eliminate TFA	
Indonesia	1.86	1	National policy commitment to eliminate TFA	
Solomon Islands	1.86	–	–	
Finland	1.86	1	National policy commitment to eliminate TFA	Best-practice TFA policy passed but not yet in effect
Nauru	1.86	1	National policy commitment to eliminate TFA	
Kyrgyzstan	1.85	3	2% industrially produced TFA limit in oils and fats only	Monitoring mechanism for mandatory TFA limits
Malta	1.84	1	National policy commitment to eliminate TFA	Best-practice TFA policy passed but not yet in effect
Algeria	1.83	1	National policy commitment to eliminate TFA	
Kiribati	1.83	–	–	

Country	Proportion of CHD deaths (%) due to TFA intake (>0.5% energy)^a	Score^b	Details of implemented policy	Notes
Thailand	1.83	4	Mandatory national ban on PHO	Monitoring mechanism for mandatory TFA limits
Japan	1.82	–	–	
Marshall Islands	1.82	–	–	
The former Yugoslav Republic of Macedonia	1.81	1	National policy commitment to eliminate TFA	
Dominican Republic	1.80	1	National policy commitment to eliminate TFA	
Zimbabwe	1.80	–	–	
Armenia	1.80	3	2% industrially produced TFA limit in oils and fats only	Monitoring mechanism for mandatory TFA limits
Vanuatu	1.79	1	National policy commitment to eliminate TFA	
Samoa	1.79	1	National policy commitment to eliminate TFA	
Papua New Guinea	1.79	1	National policy commitment to eliminate TFA	
Micronesia (Federated States of)	1.79	–	–	
Tuvalu	1.78	–	–	
Botswana	1.77	1	National policy commitment to eliminate TFA	
Lao People's Democratic Republic	1.77	1	National policy commitment to eliminate TFA	
Eswatini	1.77	1	National policy commitment to eliminate TFA	
Lesotho	1.77	–	–	
Democratic People's Republic of Korea	1.76	–	–	
Palau	1.75	–	–	
Cambodia	1.75	1	National policy commitment to eliminate TFA	

Country	Proportion of CHD deaths (%) due to TFA intake (>0.5% energy)^a	Score^b	Details of implemented policy	Notes
Myanmar	1.74	1	National policy commitment to eliminate TFA	
Fiji	1.74	1	National policy commitment to eliminate TFA	
Namibia	1.73	1	National policy commitment to eliminate TFA	
Timor-Leste	1.72	1	National policy commitment to eliminate TFA	
Norway	1.72	4	Mandatory national limit (industrially produced TFA <2 g/100 g total oils and fats in all foods)	Monitoring mechanism for mandatory TFA limits
Niue	1.71	–	–	
Tonga	1.71	–	–	
Maldives	1.70	1	National policy commitment to eliminate TFA	
Cook Islands	1.69	–	–	
Mauritius	1.69	1	National policy commitment to eliminate TFA	
Seychelles	1.69	1	National policy commitment to eliminate TFA	
Croatia	1.69	–	–	Best-practice TFA policy passed but not yet in effect
Sri Lanka	1.68	1	National policy commitment to eliminate TFA	
Viet Nam	1.67	–	–	
South Africa	1.62	4	Mandatory national limit (industrially produced TFA <2 g/100 g total oils and fats in all foods)	Monitoring mechanism for mandatory TFA limits
China	1.54	2	Mandatory declaration of TFA on nutrition labels	
Kenya	1.50	1	National policy commitment to eliminate TFA	
Poland	1.48	–	–	Best-practice TFA policy passed but not yet in effect

Country	Proportion of CHD deaths (%) due to TFA intake (>0.5% energy)^a	Score^b	Details of implemented policy	Notes
Uzbekistan	1.48	3	4% industrially produced TFA limit in all foods	
Singapore	1.45	3	2% industrially produced TFA limit in oils and fats only	Monitoring mechanism for mandatory TFA limits
Nigeria	1.45	1	National policy commitment to eliminate TFA	
Chile	1.44	4	Mandatory national limit (industrially produced TFA <2 g/100 g total oils and fats in all foods)	Monitoring mechanism for mandatory TFA limits
Ethiopia	1.44	2	Excise tax on food products that contain TFA	
Mali	1.40	–	–	
Liberia	1.39	–	–	
Guinea-Bissau	1.38	–	–	
Ghana	1.38	1	National policy commitment to eliminate TFA	
Congo	1.38	–	–	
Sierra Leone	1.38	–	–	
Zambia	1.37	1	National policy commitment to eliminate TFA	
Somalia	1.37	–	–	
Equatorial Guinea	1.37	–	–	
Mauritania	1.37	–	–	
Madagascar	1.37	–	–	
Democratic Republic of the Congo	1.37	–	–	
Guinea	1.36	–	–	
Argentina	1.36	3	2% industrially produced TFA limit in oils and fats, and 5% limit in other foods	Monitoring mechanism for mandatory TFA limits
Eritrea	1.36	–	–	
Sao Tome and Principe	1.36	–	–	
Niger	1.36	–	–	
Comoros	1.36	–	–	

Country	Proportion of CHD deaths (%) due to TFA intake (>0.5% energy) ^a	Score ^b	Details of implemented policy	Notes
Central African Republic	1.36	–	–	
Benin	1.36	1	National policy commitment to eliminate TFA	
Burundi	1.35	–	–	
Cameroon	1.35	–	–	
Senegal	1.35	–	–	
Côte d'Ivoire	1.35	1	National policy commitment to eliminate TFA	
Togo	1.35	–	–	
Angola	1.35	–	–	
Gambia	1.35	–	–	
Rwanda	1.35	–	–	
Bosnia and Herzegovina	1.35	1	National policy commitment to eliminate TFA	
Chad	1.35	1	National policy commitment to eliminate TFA	
Uganda	1.34	–	–	
Burkina Faso	1.34	–	–	
Malawi	1.34	–	–	
Djibouti	1.34	–	–	
South Sudan	1.33	–	–	
Mozambique	1.32	–	–	
United Republic of Tanzania	1.32	–	–	
Saudi Arabia	1.32	4	Mandatory national ban on PHO	Monitoring mechanism for mandatory TFA limits
Gabon	1.31	–	–	
Cabo Verde	1.31	1	National policy commitment to eliminate TFA	
Malaysia	1.25	–	–	
Kazakhstan	1.23	3	2% industrially produced TFA limit in oils and fats only	Monitoring mechanism for mandatory TFA limits

Country	Proportion of CHD deaths (%) due to TFA intake (>0.5% energy) ^a	Score ^b	Details of implemented policy	Notes
Uruguay	1.17	3	2% industrially produced TFA limit in oils and fats, and 5% limit in other foods	Monitoring mechanism for mandatory TFA limits; best-practice TFA policy passed but not yet in effect
Sweden	1.14	2	Reformulation	Best-practice TFA policy passed but not yet in effect
Ireland	1.13	–	–	Best-practice TFA policy passed but not yet in effect
Lebanon	1.02	1	National policy commitment to eliminate TFA	
Austria	1.00	4	Mandatory national limit (industrially produced TFA <2 g/100 g total oils and fats in all foods)	Monitoring mechanism for mandatory TFA limits
Turkey	0.98	2	Mandatory declaration of TFA on nutrition labels	Best-practice TFA policy passed but not yet in effect
Spain	0.96	2	Reformulation	Best-practice TFA policy passed but not yet in effect
Israel	0.94	2	Mandatory declaration of TFA on nutrition labels	
Tunisia	0.93	2	Reformulation	
Italy	0.88	2	Mandatory limits on industrially produced TFA in foods in specific settings	Best-practice TFA policy passed but not yet in effect

– missing data

^a Based on data from Global Burden of Disease 2019

^b Score definition:

1. = “National policy commitment to eliminate TFA”: National policies, strategies or action plans that express a commitment to reduce industrially produced TFA in the food supply.
2. = “Other complementary measures”: Legislative or other measures that encourage consumers to make healthier choices about industrially produced TFA (e.g. mandatory declaration of TFA on nutrition labels; front-of-pack labelling system that includes TFA; reformulation) or mandatory limits on industrially produced TFA in foods in specific settings (e.g. public institutions).
3. = “Less restrictive TFA limits”: Legislative or regulatory measures that limit industrially produced TFA in foods in all settings, but are less restrictive than the recommended approach (e.g. 2% limit for industrially produced TFA in oils and fats only; 2% limit for industrially produced TFA in oils and fats, and 5% limit in other foods; 5% limit for industrially produced TFA in oils and fats).
4. = “Best-practice TFA policy”: Legislative or regulatory measures that limit industrially produced TFA in foods in all settings and are in line with the recommended approach. The two best-practice policies for TFA elimination are: 1) mandatory national limit of 2 g of industrially produced TFA per 100 g of total fat in all foods; and 2) mandatory national ban on the production or use of PHO as an ingredient in all foods.

ANNEX 2

UPDATED METHODOLOGIES USED TO ESTIMATE TFA BURDEN BY COUNTRY FOR THIS REPORT

The estimates of TFA burden by country, provided by the Institute for Health Metrics and Evaluation, are based on data from Global Burden of Disease (GBD) study 2019, whereas the estimates in the 2019 progress report were based on data from GBD 2010. Several methodological improvements were made over the past cycles of GBD in the process of estimating the burden of disease attributable to TFA intake.

- To improve the quality and coverage of the dietary estimates, literature was searched systematically for nationally or subnationally representative studies providing information on consumption of TFA.
- To capture recent trends in TFA consumption, sales data were also used to inform the estimates.
- To improve the harmonization of data across various sources, a network meta-regression was used and non-gold-standard data points (e.g. sales data) were adjusted to 24-hour dietary recall data.
- To better characterize the overall time trend of TFA intake, spatiotemporal Gaussian process regression was used to estimate the full time series of TFA intake.
- To more accurately characterize the distribution of TFA intake at the population level, an ensemble model of different parametric distributions was developed.
- To address concerns over within-person variation in TFA intake, the standard deviation of intake was used to estimate usual TFA intake, which was then used to quantify the attributable disease burden.
- Based on the most recent epidemiological evidence and newly developed methods for characterizing the risk curve in GBD 2019, the dose-response curve of relative risks for TFA and ischaemic heart disease was updated.

FOR MORE INFORMATION, PLEASE CONTACT:

Department of Nutrition and Food Safety

World Health Organization

Avenue Appia 20, CH-1211 Geneva 27, Switzerland

Fax: +41 22 791 4156

Email: nutrition@who.int

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

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