

# Regulate or 'REPLACE': Industrial Trans Fats and the Escalating Cost of heart diseases in Uganda

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Industrially produced trans fatty acids (iTFA) were introduced into the food supply in the late 19th and early 20th centuries as a cheaper, more stable alternative to animal fats. They are produced primarily by partial hydrogenation of vegetable and fish oils to create partially hydrogenated oils (PHOs). PHOs were developed because they are less expensive than butter and other animal fats, provide a solid or semi solid texture at room temperature, offer high temperature stability for frying, and extend shelf life properties that made them attractive to bakers, food manufacturers, and street food vendors.



Today, iTFAs are most frequently found in baked and fried foods, prepared or pre packaged snacks, spreads such as margarines, and some cooking fats such as food shortenings and oils. They confer no known health benefit but are high-risk factors for cardiovascular diseases such as heart failure, stroke, and coronary heart disease, among others. By the late 20th century, an extensive body of evidence had accumulated showing adverse metabolic effects of iTFAs and a consistent association between iTFA intake and coronary heart disease; meta analyses and population studies report substantially increased risks associated with higher iTFA consumption.

In biological terms, iTFAs raise low density lipoprotein (LDL) cholesterol and lower high density lipopro-

tein (HDL) cholesterol, promoting atherosclerosis and increasing the risk of coronary heart disease and ischemic stroke. Population studies and pooled analyses have reported elevated relative risks associated with higher iTFA intake; for example, increases in all cause mortality, coronary heart disease deaths, and coronary heart disease incidence have been observed in settings with high iTFA consumption.

In Uganda, the growing availability and consumption of iTFA containing products compound an already high cardiometabolic risk profile. National estimates indicate that 33% of total deaths are due to non communicable diseases (NCDs) and that the probability of a premature death from one of the four main NCDs is about 22%, with cardiovascular diseases accounting for roughly 9% of deaths. Given the well established causal pathway from iTFA intake to raised LDL and increased coronary risk, eliminating iTFAs from the food supply is an evidence based upstream intervention that would reduce population LDL, lower incidence of coronary events and strokes, and avert premature deaths in Uganda.

The WHO REPLACE (which Uganda is a signatory to) package provides a practical six step roadmap: Review, Eliminate, Promote, Legislate, Assess, and Create awareness that Uganda can operationalize immediately using existing surveillance and regulatory structures. Key, evidence based actions include adopting a PHO ban and a 2% iTFA limit in law, establishing routine laboratory monitoring of foods, supporting industry reformulation toward (Polyunsaturated Fatty Acids/ Monounsaturated Fatty Acids) PUFA/MUFA rich oils, and mounting consumer awareness campaigns to shift demand. These measures are technically feasible and have been implemented successfully in multiple countries.

Several countries provide practical models Uganda can adapt: Denmark pioneered legal limits on industrial trans fats; Argentina, South Africa, Nigeria, Thailand, Saudi Arabia, Lithuania and Poland have enacted PHO bans or strict limits and monitoring systems ; by 2023, dozens of countries had adopted best practice policies, demonstrating feasibility at scale and offering regulatory templates and laboratory protocols Uganda can replicate .

Eliminating iTFAs is also economically prudent, modelling and country case studies show that iTFA elimination is highly cost effective and often cost saving, reducing long term treatment costs for coronary heart disease and stroke while imposing modest, one off reformulation costs on industry . For Uganda, the immediate policy priority is to legislate a clear standard (PHO ban and limit to  $\leq 1\%$  iTFAs) through a hybrid regulation, fund routine market surveillance, and provide technical support to small and medium food producers to reformulate actions that will reduce premature deaths, lower health care spending growth, and protect workforce productivity.

A practical pathway for Uganda is to replace partially hydrogenated oils with healthier options such as oils rich in polyunsaturated and monounsaturated fatty

acids, including sunflower, soybean, canola, and olive oils, or high oleic varieties that provide stability for frying and baking. Innovative processing methods like enzymatic interesterification and fractionation can also deliver solid fats without trans fats, while indigenous oils such as sesame, groundnut, and avocado offer culturally acceptable substitutes.

Supporting small and medium enterprises with technical assistance, financial incentives, and training will ease the transition, while routine laboratory monitoring and transparent compliance reporting will ensure standards are met. Global examples, notably Denmark's  $\leq 2\%$  legal limit and Argentina and Chile's PHO bans, show that these measures are both feasible and cost effective, reducing LDL cholesterol, lowering coronary heart disease and stroke incidence, and cutting long term healthcare costs while imposing only modest one time expenses on industry.

In conclusion therefore, the Ministry of Health in Uganda must prioritize and expedite national efforts to eliminate industrial trans fats from Uganda's food supply by adopting a clear legal standard (a  $\leq 1\%$  iTFA limit and a PHO ban), resourcing routine laboratory surveillance and compliance reporting, and providing targeted technical and financial support to small and

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