Trans-fatty acid assessment

Report of the WHO expert consultation

Geneva, Switzerland, 11–12 October 2018

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Background

Cardiovascular disease is the leading cause of death globally, accounting for one in every three deaths. Nearly half of the deaths caused by cardiovascular disease are in lower-income countries, among people aged under 70 years. The World Health Organization (WHO) has identified the elimination of industrially produced *trans*-fatty acids (TFAs) from the food supply as a cost-effective intervention to prevent cardiovascular disease.

In May 2018, WHO called for the global elimination of industrially produced TFAs by 2023 as part of the priority targets of the WHO 13th General Programme of Work, which will guide the work of WHO in 2019–2023. WHO also released, in collaboration with Resolve to Save Lives,[1] the REPLACE[2] action package, including an action framework and six modules. The framework is a roadmap for countries to implement the prompt, complete and sustained elimination of industrially produced TFAs from their national food supplies.

This document is a report of a 2-day WHO expert consultation[3] that was held to review and discuss the draft REPLACE "A" ("assess") module. This module outlines key actions for assessing and monitoring TFA content in the food supply, and changes in TFA consumption in the population. The expert consultation also reviewed draft laboratory protocols, and agreed on approaches for TFA assessment in foods and blood plasma.

The objectives of the consultation were to:

- discuss and agree on surveillance approaches, including a sampling frame, for measuring TFA exposure in humans and TFA content in foods;
- review and develop laboratory protocols for measuring TFA exposure in humans and TFA content in foods;
- discuss and agree on analytical performance criteria for measuring TFA exposure in humans and TFA content in foods, and reporting formats for laboratory results; and
- identify opportunities for multisectoral collaborations to build capacity for TFA measurements in selected countries.

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1 Resolve to Save Lives is an initiative of Vital Strategies.

2 REPLACE has six action areas: review (RE), promote (P), legislate (L), assess (A), create (C) and enforce (E). Six detailed REPLACE modules were developed and released in May 2019.

3 The list of participants is in the Annex.

Current experience with TFA assessment

The REPLACE action package provides a step-by-step guide for the elimination of industrially produced TFAs from the global food supply. The A module of the package focuses on the assessment and monitoring of TFA content in the food supply, and of changes in TFA consumption in the population. Although some countries may already have TFA assessment protocols, global protocols are needed to increase the accuracy and comparability of TFA data so that the impact of public health interventions can be monitored.

As part of the background documents for the expert consultation, WHO prepared laboratory protocols and surveillance tools for measuring TFA content in foods and TFA exposure in humans, building on the existing protocol developed by the United States (US) Centers for Disease Control and Prevention (CDC).

At the consultation, the REPLACE action package was introduced, and the contents and focus of the A module were reviewed, along with the online annexes that will accompany the module. The experts suggested that a food description guide will enable comparison between countries and should be included in the online resources.

The US CDC provided an overview of measuring population-level TFA intake through questionnaires and blood measurements, and explained how the plasma samples of the National Health and Nutrition Examination Survey were tested to assess the impact of US regulations on TFA labelling. A pilot study and a main study were conducted to measure the four main TFAs in samples from two surveys (10 years apart). The data indicate an overall 54% reduction in TFA intake by the population; differences were consistent for all four TFAs investigated. A presentation was given on the US CDC laboratory method for measuring TFAs in blood samples: gas chromatography–mass spectrometry (GC-MS). This method:

- enables quantification of four major TFAs and 23 other fatty acids
- has high levels of specificity, sensitivity and accuracy
- requires only 100 µL of sample
- is automated, allowing appropriate throughput for population studies