Estimated Health Benefits, Costs, and Cost-Effectiveness of Eliminating Industrial Trans-Fatty acids in Australia

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Objectives: To assess the potential cost-effectiveness, health gains, and effects on health equality of eliminating industrial trans-fatty acids (TFAs) from the Australian food supply.

Methods: Markov cohort models were used to estimate the cost-effectiveness and policy impact on (ischemic heart disease) IHD burden and health equity of a national ban of industrial TFAs in Australia. Intake of TFA was assessed using the 2011–2012 Australian National Nutrition and Physical Activity Survey. The IHD burden attributable to TFA was calculated by comparing the current level of TFA intake to a counterfactual setting (0.5% energy per day from TFA; corresponding to TFA intake only from non-industrial sources, e.g., dairy foods). Policy costs, avoided IHD events and deaths, health-adjusted life years (HALYs) gained, and IHD-related healthcare costs saved were estimated over 10 years and lifetime of the adult Australian population.

Cost-effectiveness was assessed by calculation of incremental cost-effectiveness ratios (ICER) using net policy cost and HALYs gained. Health benefits and health care cost changes were also assessed in subgroups based on socioeconomic status and remoteness.

Results: Elimination of industrial TFA was estimated to prevent 2,294 (95% uncertainty interval [UI]: 1,765; 2,851) IHD deaths and 9,931 (95% UI: 8,429; 11,532) IHD events over the first 10 years. The greatest health benefits were accrued to the most socioeconomically disadvantaged quintiles and among Australians living outside of major cities. The intervention was estimated to be cost-saving or cost-effective (i.e., ICER < 169,361 AUD/HALY) regardless of the time horizon, with ICERs of 1,073 (95% UI: dominant; 3,503) and 1,956 (95% UI: 1,010; 2,750) AUD/HALY over 10 years and lifetime, respectively. The TFA ban was estimated to be cost-saving or highly cost-effective in sensitivity analyses altering assumptions of post-intervention TFA intake, abundance of TFA-containing products, or discount rate.

Conclusions: A ban of industrial TFAs could avert substantial numbers of IHD events and deaths in Australia and will likely be a highly cost-effective strategy to reduce social-economic and urban-rural inequalities in health.

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