# **Real world evidence of health impacts of sweet beverage taxes**

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## Key points:

* Nutrition transitions and the associated rise in the rates of overweight/obesity and other diet-related diseases like diabetes have developed over decades. As such, we can expect that population-level dietary improvements in response to policy implementation will take several years to positively impact rates of obesity and other diet-related diseases.
* Moreover, no single policy is a magic bullet, and the simultaneous adoption of multiple policies will be needed to move the needle on rates of obesity/diet-related diseases (this includes supply side interventions, which we are not working on). To date, very few countries have adopted a package of policies and those that have, did so relatively recently (e.g., Chile began implementing Phase 1 of its FOPL/marketing/schools policy in 2016).
* To date, our evaluations have focused on shorter-term outcomes like changes in purchases or sales of unhealthy products as a proxy of what people are consuming. We know enough about the causal pathway of obesity to be confident that positive dietary shifts will have some impact on body weight. There is a large and growing body of evidence that consistently demonstrates that sweetened beverage taxes (SBTs) and front-of-package labels (FOPL)- the two most widely adopted and evaluated policies- are contributing to positive shifts in what people are purchasing. This is a necessary step for reducing rates of overweight/obesity and diet-related disease.
* Evidence of positive health impacts of sweetened beverage taxes (SBTs) is now starting to emerge- of all our priority policies, SBTs have been most widely implemented and for longer periods of time; moreover, many places have only adopted SBTS, making its association with health outcomes more straightforward than in cases where multiple policies are simultaneously adopted.
* To date, 14 studies from different countries and across different populations have been published. In almost all cases, these studies show positive health impacts of SBT, including on weight/BMI, dental caries, perinatal outcomes, and even childhood asthma (see bibliography below). In some studies where impacts were not found for the population at large, impacts were found for more vulnerable populations (i.e., lower-income); and in some studies with overall impacts, the effects were larger for some vulnerable populations. Taken together, this suggests potentially important implications for improving health equity.

## Health Outcomes of Sweetened Beverage Taxes: Bibliography of studies to date

### Outcome: Body weight or Body Mass Index

#### Positive impacts:

[**City-Level Sugar-Sweetened Beverage Taxes and Youth Body Mass Index Percentile, July 31, 2024**](https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2821695?guestAccessKey=89ec50a6-eab5-42cf-9d95-d6d2679d5578&utm_source=jps&utm_medium=email&utm_campaign=author_alert-jamanetwork&utm_content=author-author_engagement&utm_term=1m)

* This cohort study found that 4-6 years after implementation of SSB excise taxes, youth living in exposure cities with SSB taxes (Albany, Berkeley, Oakland, and San Francisco) had significantly greater declines in mean BMI percentile compared to youth living in control cities. Statistically significant associations were noted for youth under age 12 years, males, White and Asian youth, and youth with obesity and were particularly high in the cities of Berkeley and San Francisco.

[**Sweetened Beverage Tax Implementation and Change in Body Mass Index Among Children in Seattle, May 29, 2024**](https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2819139#249706744)

* In this cohort study, the [Seattle tax](https://www.seattle.gov/city-finance/business-taxes-and-licenses/seattle-taxes/sweetened-beverage-tax) was associated with a larger decrease in BMIp95 for children living in Seattle compared with children living in a comparison area with no tax, two years after implementation.

[**Soda taxes, consumption, and health outcomes for high school students, January 2024**](https://www.sciencedirect.com/science/article/abs/pii/S0165176523005335)

* Using data from the Youth Risk Behavioral Surveillance System (YRBS) survey, researchers found BMI reductions of 1.3% among high school students roughly four years after implementation of SSB taxes in Philadelphia, Oakland, and San Francisco, with larger effects for females and non-white respondents.

[**Do sugar-sweetened beverage taxes improve public health for high school aged adolescents? January 2023**](https://onlinelibrary.wiley.com/doi/10.1002/hec.4609)

* Sweetened beverage taxes in three cities (Philadelphia, San Francisco, and Oakland) were associated with a decrease in average BMI among high school students in the two years since implementation in Philadelphia, one and a half years since implementation in Oakland, and one year since implementation in San Francisco, with suggestive evidence that the improvements are concentrated among female and non-white respondents.

[**Associations between trajectories of obesity prevalence in English primary school children and the UK soft drinks industry levy: An interrupted time series analysis of surveillance data, January 2023**](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9879401/)

* An evaluation of the UK SDIL found that 19 months post-tax implementation there was an 8% relative reduction in obesity levels in girls aged 10/11 years, equivalent to prevention of 5,234 cases of obesity per year in girls aged 10/11 years, alone. Reductions were greatest in girls whose school was in the 40% most deprived areas. No associations were found between the SDIL and changes in obesity levels in boys aged 10/11 years or younger children aged 4/5.

#### Mixed or no significant impacts:

[**Associations of the Philadelphia sweetened beverage tax with changes in adult body weight: an interrupted time series analysis, Oct. 2024**](https://www.thelancet.com/journals/lanam/article/PIIS2667-193X(24)00233-3/fulltext)

* Three years after Philadelphia began taxing sweetened beverages, adults in a cross-sectional sample saw a statistically significant BMI decrease of −0.60 kg/m² from before the tax. A separate panel sample of adults saw a BMI decrease of −0.32 kg/m² over the three-year period, but this difference was not statistically significant. Despite this, consistent trends across study designs suggest a potential reduction in adult body weight and obesity prevalence following the tax.

[**The Philadelphia Beverage Tax and Pediatric Weight Outcomes, November 2024**](https://jamanetwork.com/journals/jamapediatrics/article-abstract/2826830)

* Two years after implementation of the Philadelphia beverage tax, there were no observed changes in youth zBMI or obesity prevalence. Some subgroup analyses revealed changes based on race, age, weight, and Medicaid status, but these differences were minor, inconsistent, and not clinically meaningful.

[**Changes in Weight-Related Outcomes Among Adolescents Following Consumer Price Increases of Taxed Sugar-Sweetened Beverages, December 13, 2021**](https://jamanetwork.com/journals/jamapediatrics/fullarticle/2786784)

* Pass-through of the Mexico sweetened beverage tax was associated with a reduction in obesity prevalence among adolescent girls, but not boys within two years of a price change, but no association was observed within one year. A 10% increase in SSB prices was associated with a 3% relative decrease in prevalence of overweight or obesity among adolescent girls. Improved weight-related outcomes were small and largely observed in girls with heavier weight and in cities where price increases were greater than 10% after the tax.

[**The effect of beverage taxes on youth consumption and body mass index: Evidence from Mauritius, March 2022**](https://onlinelibrary.wiley.com/doi/10.1002/hec.4497)

* No detectable association between the Mauritius sugar-sweetened beverage tax and BMI was observed among boys or girls.

### Outcome: Dental Caries

[**Taxes to Unhealthy Food and Beverages and Oral Health in Mexico: An Observational Study, April 2021**](https://karger.com/cre/article/55/3/183/86062/Taxes-to-Unhealthy-Food-and-Beverages-and-Oral)

* Implementation of Mexico’s SSB tax was associated with a reduction in outpatient visits related to dental caries in the four years after implementation; the probability of having experienced dental caries for all age groups, except for children under 5 years old; and the number of teeth with caries. Also found immediate reductions after the taxes were implemented for the number of individuals having experienced dental caries and mean number of teeth with caries experiences.

[**Estimated impact of the UK soft drinks industry levy on childhood hospital admissions for carious tooth extractions: interrupted time series analysis, Nov 2023**](https://nutrition.bmj.com/content/6/2/243.info)

* Dental extractions due to caries is the number one reason for children having an elective admission to hospital in England. Nearly two years after the soft drinks industry levy (SDIL) came into force, incident rates of hospital admissions for carious tooth extractions fell in children by 12% compared with the counterfactual scenario of no implementation of SDIL.

[**Changes in Dental Outcomes After Implementation of the Philadelphia Beverage Tax, February 2023**](https://www.ajpmonline.org/article/S0749-3797(23)00069-7/abstract)

* The Philadelphia beverage tax was not associated with reduced tooth decay in the general population three years after implementation, but it was associated with reduced tooth decay in adults and children on Medicaid, suggesting potential health benefits for low-income populations.

### Outcome: Perinatal Health

[**Sugar-Sweetened Beverage Taxes and Perinatal Health: A Quasi-Experimental Study, March 2023**](https://www.ajpmonline.org/article/S0749-3797(23)00158-7/fulltext)

* A study of perinatal health in the one to four years following implementation of five sub-national SSB taxes in the US (Berkeley, Philadelphia, Oakland, San Francisco, and Seattle) found that the SSB taxes were associated with reduced risk of gestational diabetes mellitus, lower maternal weight-gain-for-gestational-age and lower risk of infants born small for gestational age.

### Outcome: Asthma

[**The UK Soft Drinks Industry Levy and childhood hospital admissions for asthma in England, June 10, 2024**](https://www.nature.com/articles/s41467-024-49120-4)

* The SDIL was associated with an overall reduction in hospital admissions for asthma in children aged 5–18 years of 21%, 22 months after implementation. Reductions were seen across all areas of deprivation and age groups. These findings give support to the idea that implementation of a UK tax intended to reduce childhood obesity may have contributed to a significant unexpected and additional public health benefit in the form of reduced hospital admissions for childhood asthma.