Changes in Dental Outcomes After Implementation of the Philadelphia Beverage Tax

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Beverage taxes are associated with declines in sugar-sweetened beverage sales and consumption, but few studies have evaluated the associations of these taxes with health outcomes. This study analyzed changes in dental decay after the implementation of the Philadelphia sweetened beverage tax. Electronic dental record data were obtained on 83,260 patients living in Philadelphia and control areas from 2014 to 2019. Difference-in-differences analyses compared the number of new Decayed, Missing, and Filled Teeth with that of new Decayed, Missing, and Filled Surfaces before (January 2014-December 2016) and after (January 2019-December 2019) tax implementation in Philadelphia and control patients. Analyses were conducted in older children/adults (aged ?15 years) and younger children (aged <15 years). Subgroup analyses stratified by Medicaid status. Analyses were conducted in 2022. The number of new Decayed, Missing, and Filled Teeth did not change after tax implementation in Philadelphia in panel analyses of older children/adults (difference-in-differences= -0.02, 95% CI= -0.08, 0.03) or younger children (difference-in-differences=0.07, 95% CI= -0.08, 0.23). There were similarly no post-tax changes in the number of new Decayed, Missing, and Filled Surfaces. However, in cross-sectional samples of patients on Medicaid, the number of new Decayed, Missing, and Filled Teeth was lower after tax implementation in older children/adults (difference-in-differences= -0.18, 95% CI= -0.34, -0.03; -20% decline) and younger children (difference-in-differences= -0.22, 95% CI= -0.46, 0.01; -30% decline), with similar results for number of new Decayed, Missing, and Filled Surfaces. The Philadelphia beverage tax was not associated with reduced tooth decay in the general population, but it was associated with reduced tooth decay in adults and children on Medicaid, suggesting potential health benefits for low-income populations.

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