

ASHES, Vol. 19(11) - Ending the epidemic: Assessing the impact of e-cigarette flavor and strength restrictions

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Though media attention often focuses on [e-cigarette flavors](#) that appeal to young people, many e-cigarette producers are also [trying](#) to provide the highest concentrations of nicotine possible and making it more difficult to quit. As a result, some states have passed new laws to mitigate these dual influences, such as by [implementing flavor bans and caps on nicotine strength](#), to reduce the [prevalence](#) of [vaping](#). It is important to determine whether these laws are having the intended effects. This week, ASHES reviews a [study by Fatma Romeh Ali and colleagues](#) that examined the effects of state-level restrictions on e-cigarette flavor and strength on the weighted mean nicotine strength of all units sold (average strength), and [per capita](#) total unit sales (per capita sales), of e-cigarettes.

What was the research question?

How do state level restrictions on e-cigarette flavor and nicotine concentration affect the average strength of purchased products and per capita sales between states?

What did the researchers do?

The researchers collected e-cigarette retail scanner data from e-cigarette vendors (e.g., convenience stores, gas stations) within 39 U.S. states. They sorted states into four categories; states with flavor and strength restrictions (MA), states with strength restrictions only (UT), states with flavor restrictions only (NY, RI, WA), and states with no restrictions (i.e., control states)¹. The researchers created average strength and per capita sales for each state by month. Using these monthly scores, they performed [difference-in-difference regressions](#) to determine the change in average strength and per capita sales between the different regulatory approaches.

What did they find?

After implementing their restrictions, both Massachusetts and Utah experienced decreases in average strength and per capita sales. In comparison, states that only implemented flavor restrictions saw mixed results. Both Rhode Island and New York experienced increases in average strength but decreases in per capita sales while Washington experienced no changes. After adjusting for changes in control states, nearly every state that implemented restrictions saw a decrease in both average strength and per capita sales. The sole exception was Utah, which saw no change in per capita sales after implementing their nicotine strength limit, but did see a reduction in average strength (see Figure).

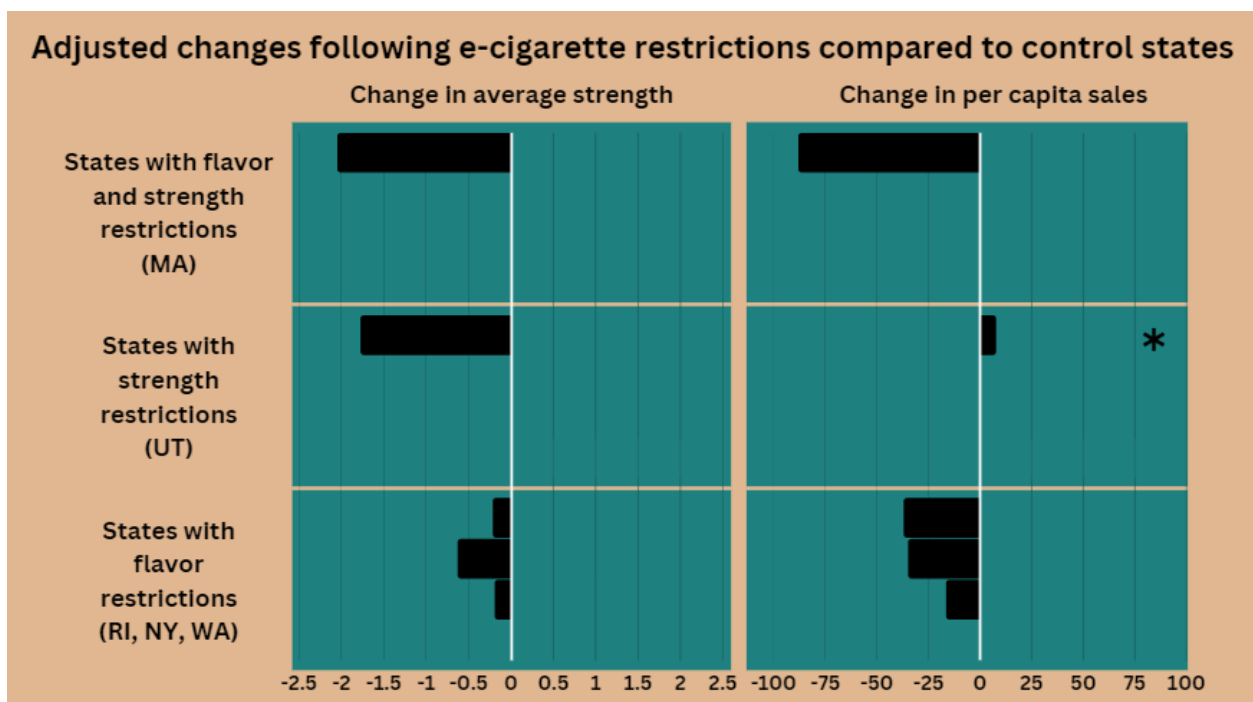


Figure. Displays the change in average strength and per capita sales by regulatory strategy for each state while adjusting for concurrent rate changes in the control states. Click image to enlarge.

*All changes were [statistically significant](#) with the exception of per capita unit sales in Utah.

Why do these findings matter?

These findings are important because they can help policymakers choose the most effective regulatory approach for confronting the vaping epidemic. Between the three approaches, Massachusetts, where restrictions were placed on both flavor and strength, had the greatest reductions in average strength and per capita sales, providing evidence for the effectiveness of this regulatory approach compared to others at reducing nicotine consumption.

Every study has limitations. What are the limitations in this study?

The retail data did not include online or vape shop transactions where a significant portion of [e-cigarette purchases](#) occur. Additionally, this study could not account for changes in the use of other tobacco products, like cigarettes or chewing tobacco. It is possible that some participants shifted from vaping e-cigarettes to other forms of tobacco use once restrictions were implemented though other studies suggest this is [unlikely](#).

For more information:

Individuals who want to reduce their e-cigarette use may find support through the [Truth Initiative](#). Others who want to learn more about e-cigarettes and their risks may benefit from visiting the [CDC's page on vaping](#). Additional resources can be found at the BASIS [Addiction Resources](#) page.

—John Slabczynski

What do you think? Please use the comment link below to provide feedback on this article.

1. States with no restrictions that were used as controls include AL, AZ, AR, CA, CO, CT, FL, GA, IL, IN, IA, KY, LA, ME, MD, MI, MO, NV, NH, NC, ND, OH, OK, OR, PA, SC, SD, TN, TX, VT, VA, WV, WI, WY.
