

Differences in Electronic and Combustible Cigarette Use by Age and Sexual Orientation

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Acknowledgements

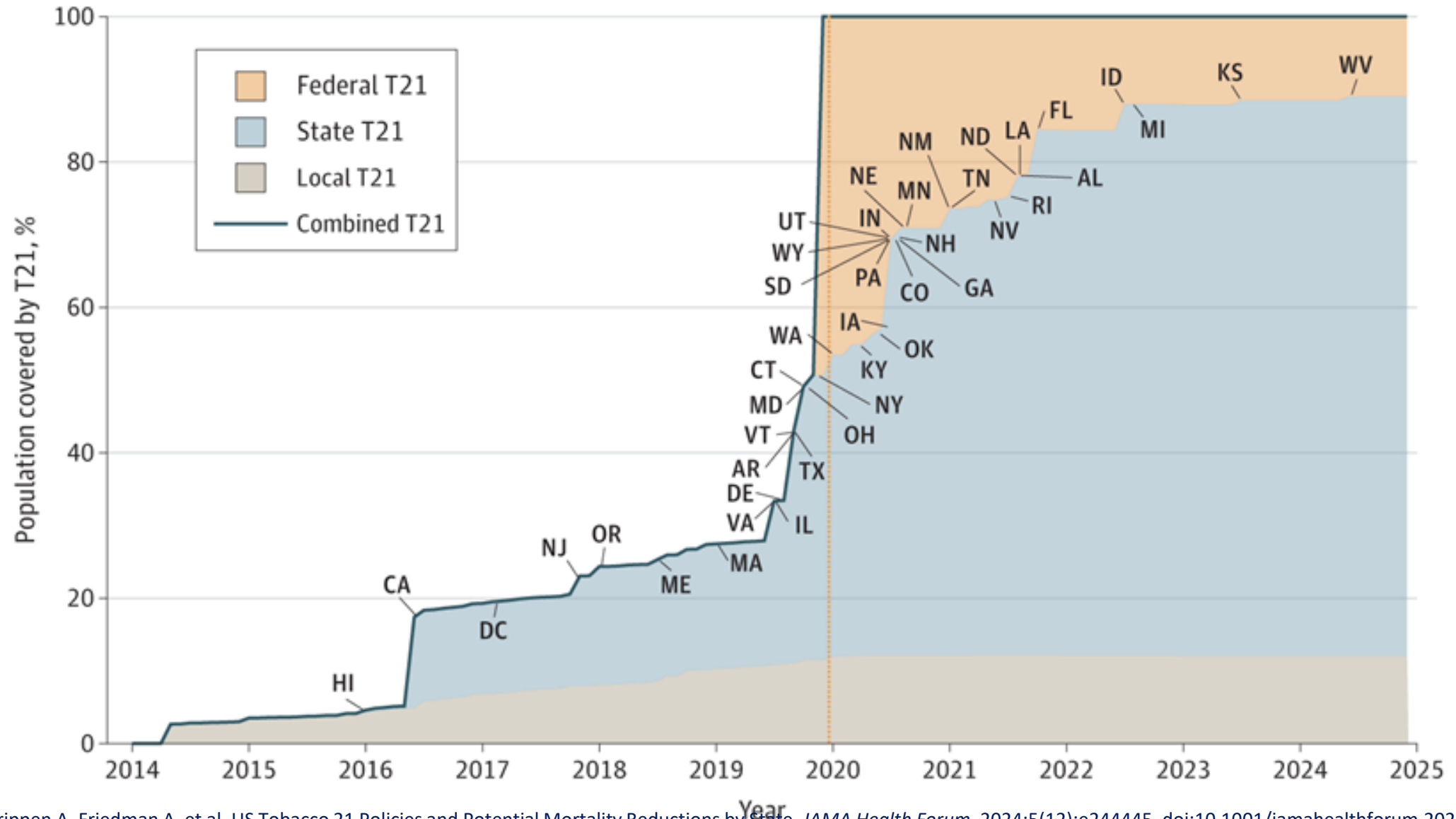
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- Tobacco 21 Policy Context
- Data: Behavioral Risk Factor Surveillance System
- Patterns of Smoking and Vaping by Age and Sexual Orientation
- Future Directions
- Key Takeaways

Road Map

In December 2019, the US implemented federal Tobacco 21 laws (T21) raising the minimum legal sales age of tobacco products from 18 to 21.

Population Covered by State and Federal T21 Laws



Data: Behavioral Risk Factor Surveillance System

BRFSS is an annual nationally representative probability sample of ~450k adults

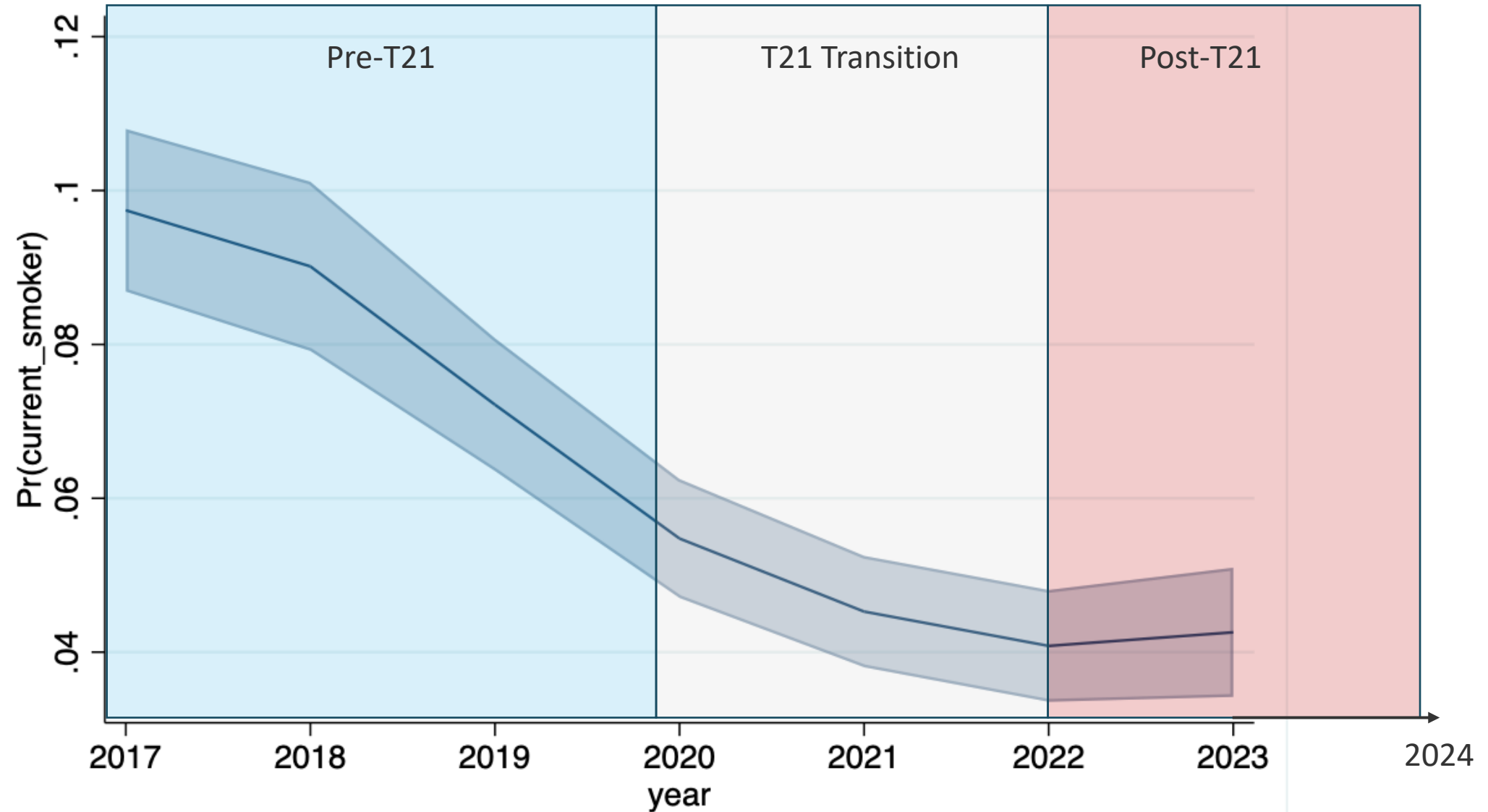
- 2017-2023: Data available on combustible cigarettes.
- 2021-2023: Data available on electronic cigarettes (e-cigs/vapes)
- Stratify by sex, high school degree completion, federal poverty level, sexual orientation.

How did smoking prevalence change before, during, and after T21 implementation among young adults aged 18-20?

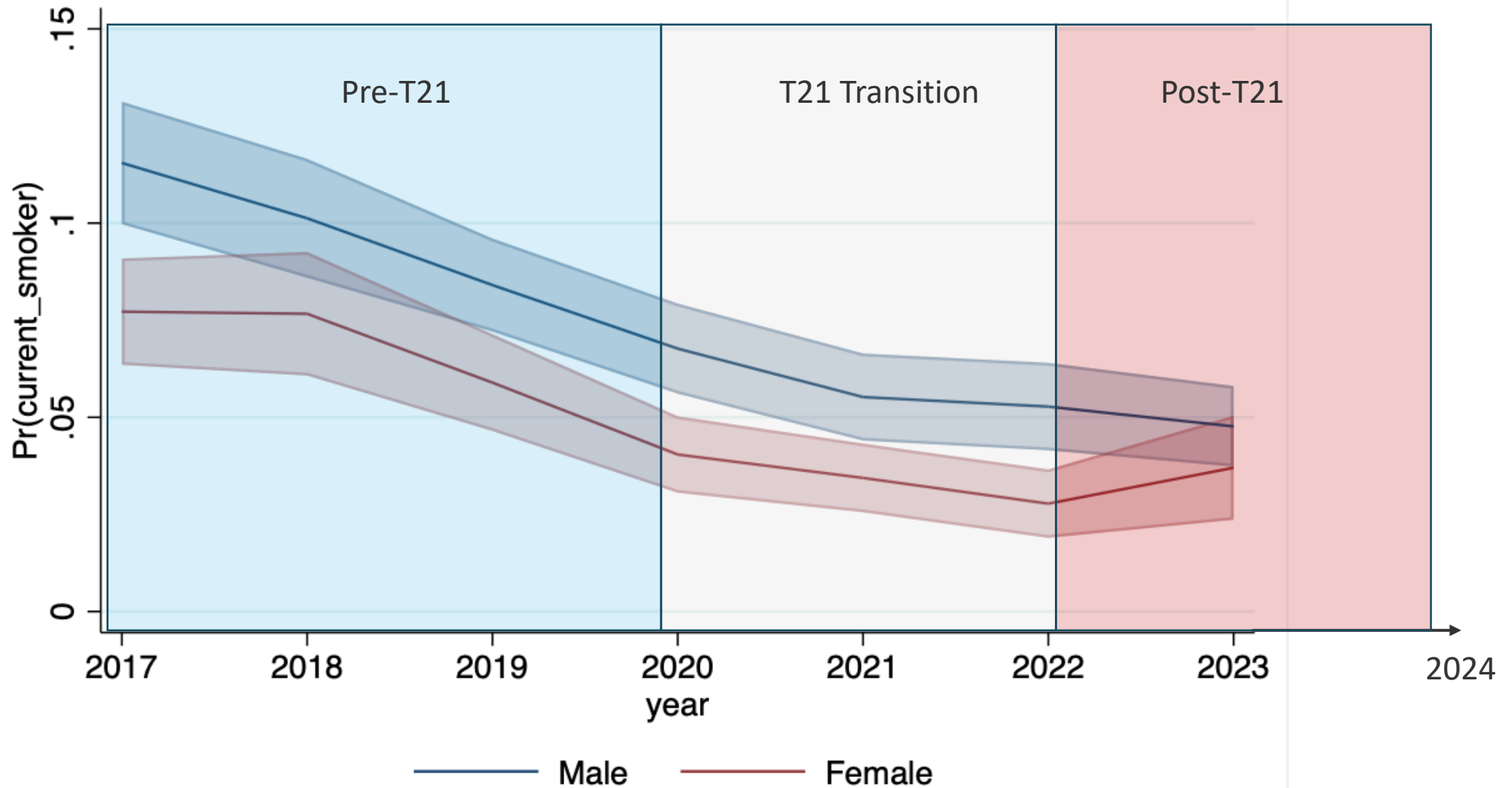
Analytic sample of n= 62,626 US young adults aged 18-20 from 44 states without local-level T21.

- 52.7% male, 14.6% had earned <high school degree, 25.7% had household incomes <200% FPL, and 19.27% identified as sexual minority

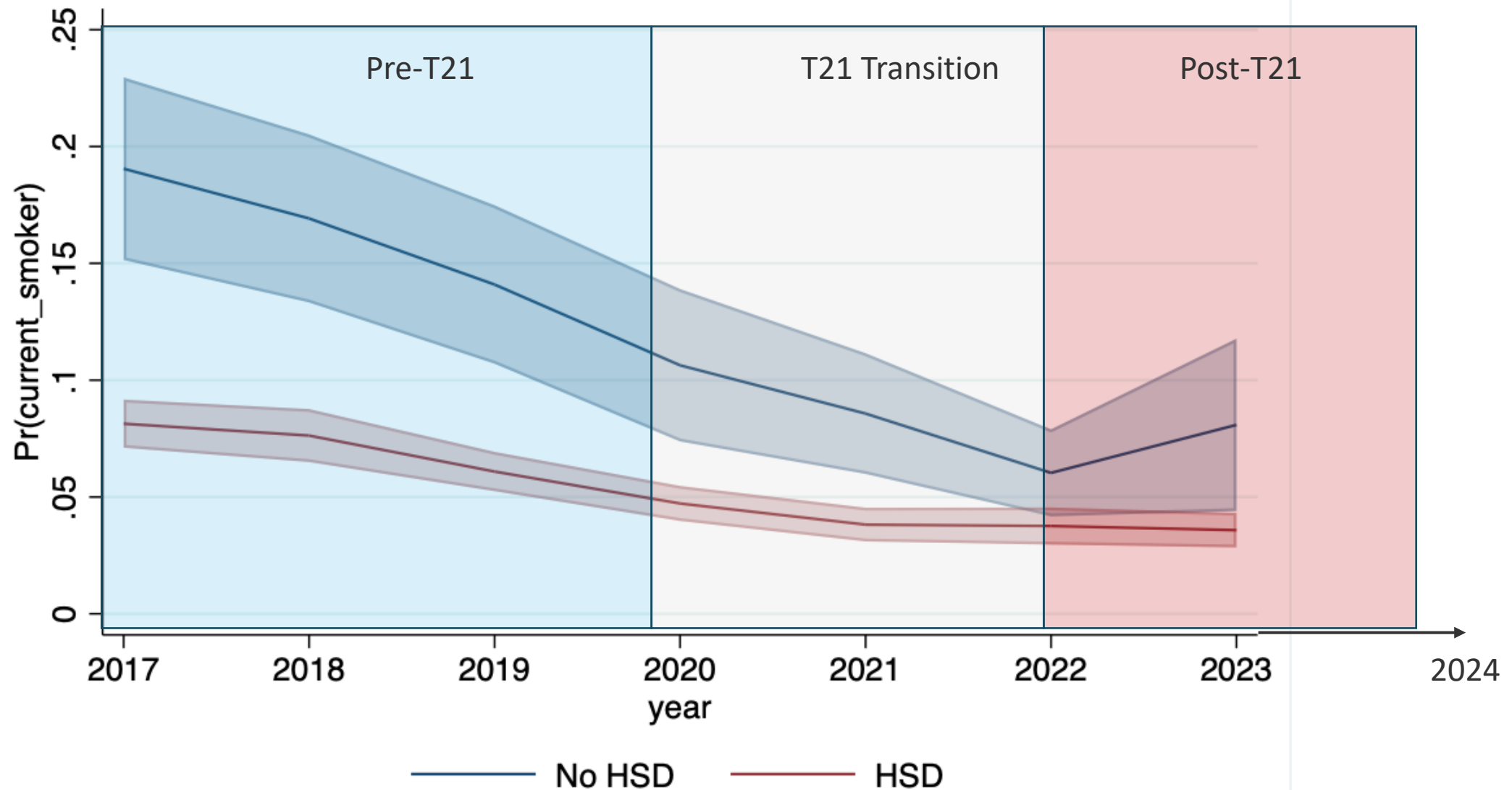
Current Smoking Among Young Adults Aged 18-20



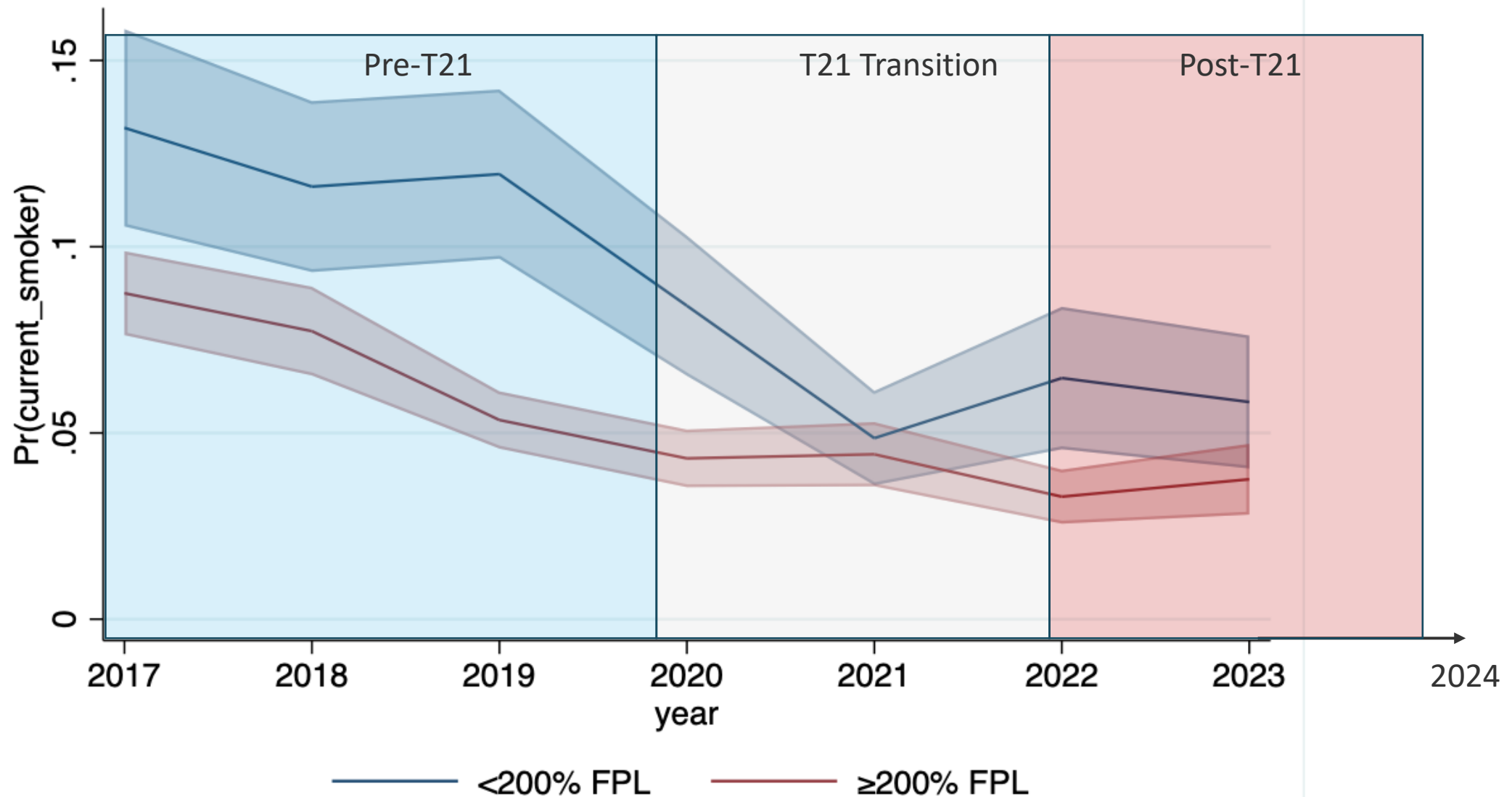
Current Smoking Among Young Adults Aged 18-20, by Sex



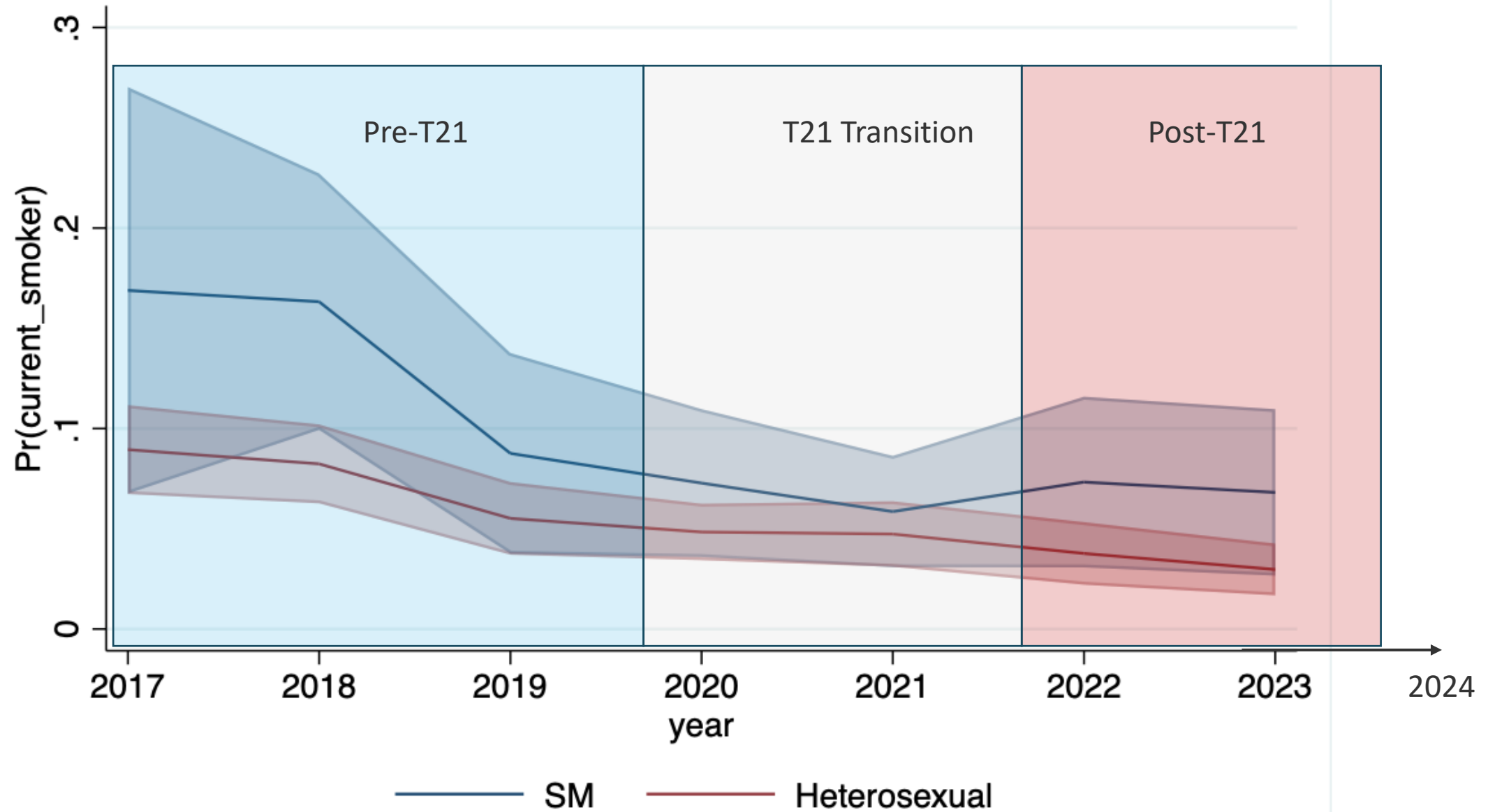
Current Smoking Among Young Adults Aged 18-20, by High School Degree Completion



Current Smoking Among Young Adults Aged 18-20, by Federal Poverty Level



Current Smoking Among Young Adults Aged 18-20, by Sexual Orientation



How much did smoking decline overall, and after T21 implementation?

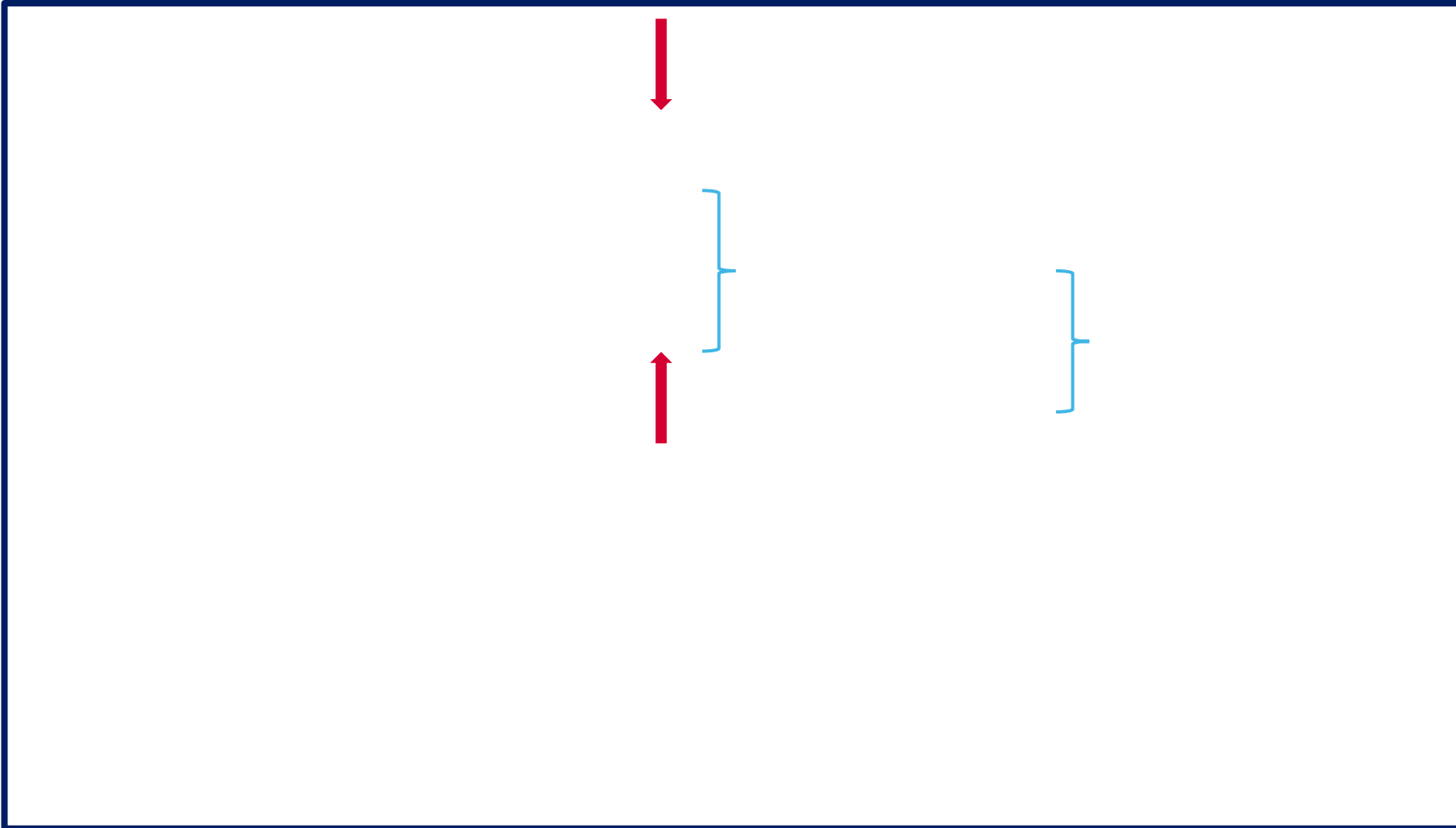
Category	Overall Decline (95% CI)		Decline after T21 Implementation (95% CI)		Proportion of Decline after T21 Implementation
	Post Implementation –Pre Implementation	p-value ^a		p-value	% of Total Decline
<u>TOTAL</u>	-4.50 (-5.30, -3.69)	<.001***	-0.84 (-1.61, -0.07)	.032*	18.67
<u>SEX</u>					
Male	-5.02 (-6.15, -3.88)	<.001***	-1.14 (-2.25, -.027)	.045*	22.71
Female	-3.85 (-4.99, -2.71)	<.001***	-0.50 (-1.55, 0.54)	.343	12.99
<u>EDUCATION</u>					
No HSD	-9.68 (-12.65, -6.71)	<.001***	-2.45 (-5.38, 0.48)	.101	25.31
HSD	-3.62 (-4.41, -2.82)	<.001***	-0.62 (-1.37, 0.13)	.108	17.13
<u>FEDERAL POVERTY LEVEL</u>					
<200% FPL	-6.00 (-7.90, -4.09)	<.001***	-0.70 (-2.48, 1.07)	.436	11.67
≥200% FPL	-3.79 (-4.65, -2.94)	<.001***	-0.84 (-1.68, -0.02)	.046*	22.43
<u>SEXUAL ORIENTATION</u>					
Sexual Minority	-6.33 (-11.41, -1.25)	.015*	-0.55 (-3.19, 4.29)	.773	8.69
Heterosexual	-4.27 (-5.80, -2.74)	<.001***	-1.46 (-2.92, 0.003)	.050	34.19
a ***Significant at .001 level **Significant at .01 level *Significant at .05 level					

In 2016, the Food and Drug Administration approved marketing of electronic cigarettes as a “less harmful product” with potential to “significantly reduce cigarette use.”

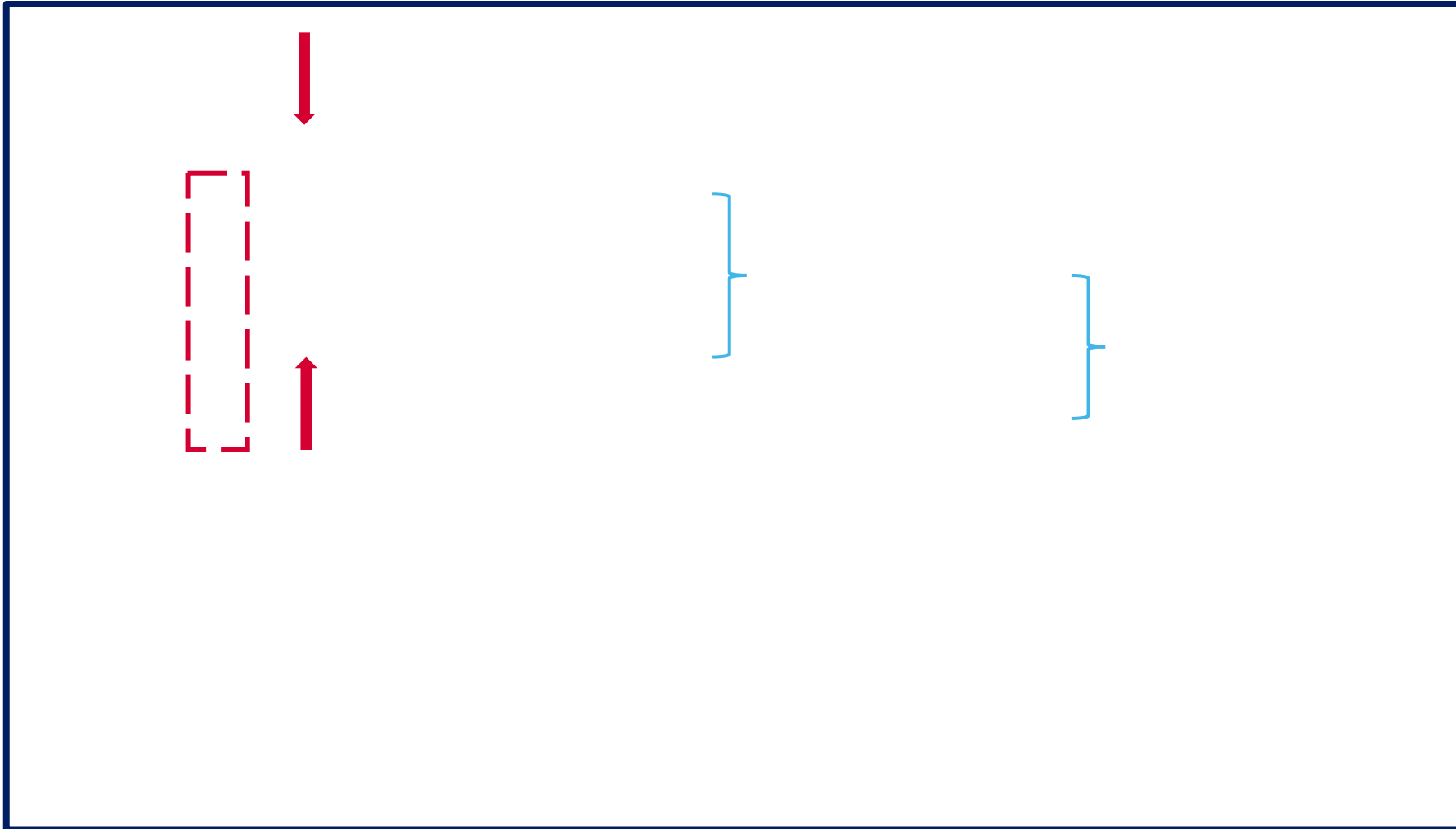
How did patterns of smoking and vaping vary by age and sexual orientation?

- Analytic sample of $n = 596,197$ across 25 states, 8% identified as sexual minority (lesbian, gay, bisexual, something else) compared to 92% who identified as heterosexual.
- Split our sample by age : 18-20, 21-24, 25-29,...75-79, 80+

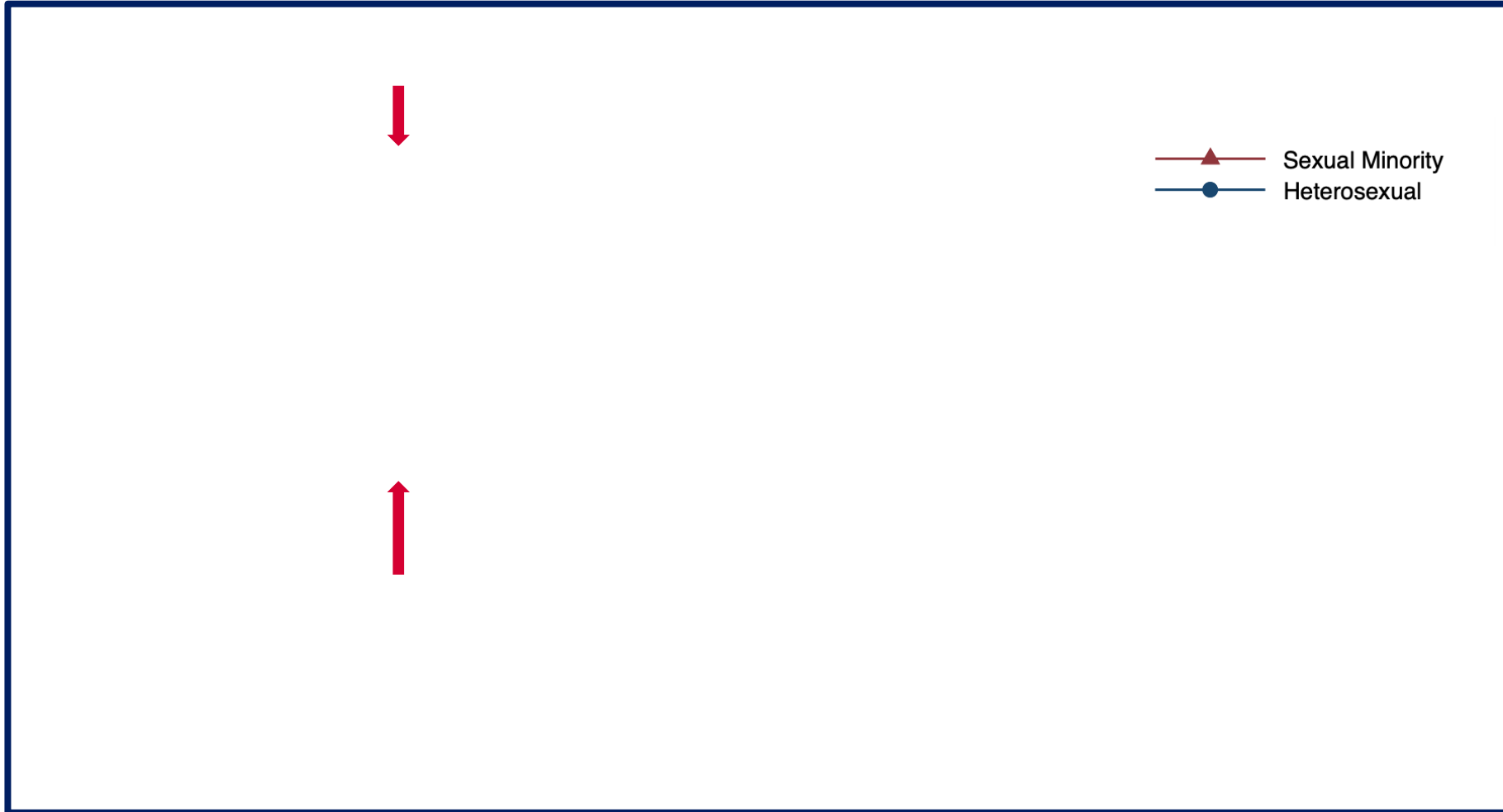
SM adults report dual-peaks in smoking at 40-44 and 60-64, heterosexual adults consistent declines after age 45.



Among 18-20yo's... 1 in 6 heterosexual young adults, 1 in 5 sexual minority young adults use e-cigarettes.



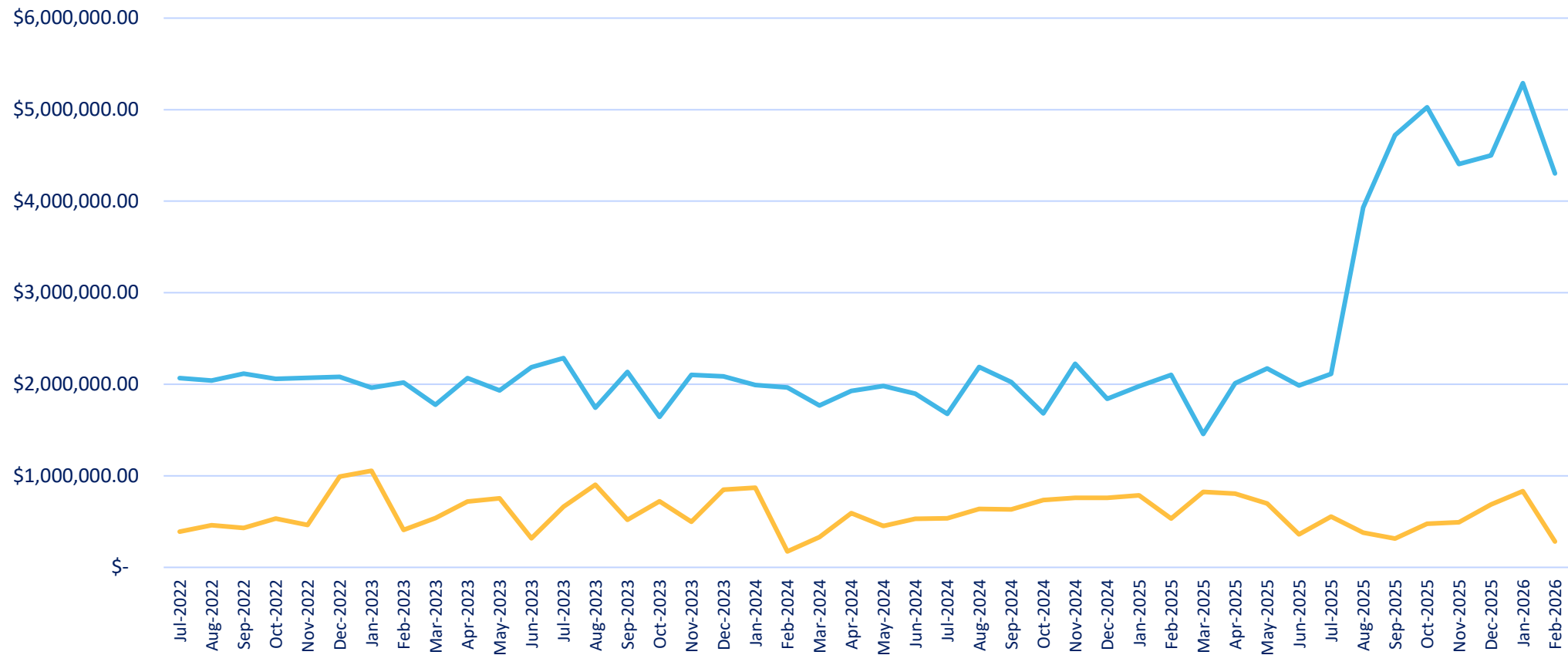
Dual use of both tobacco products higher among SM.



Future Directions

Estimating the Price Elasticity of E-Cigarettes: Evidence from Illinois

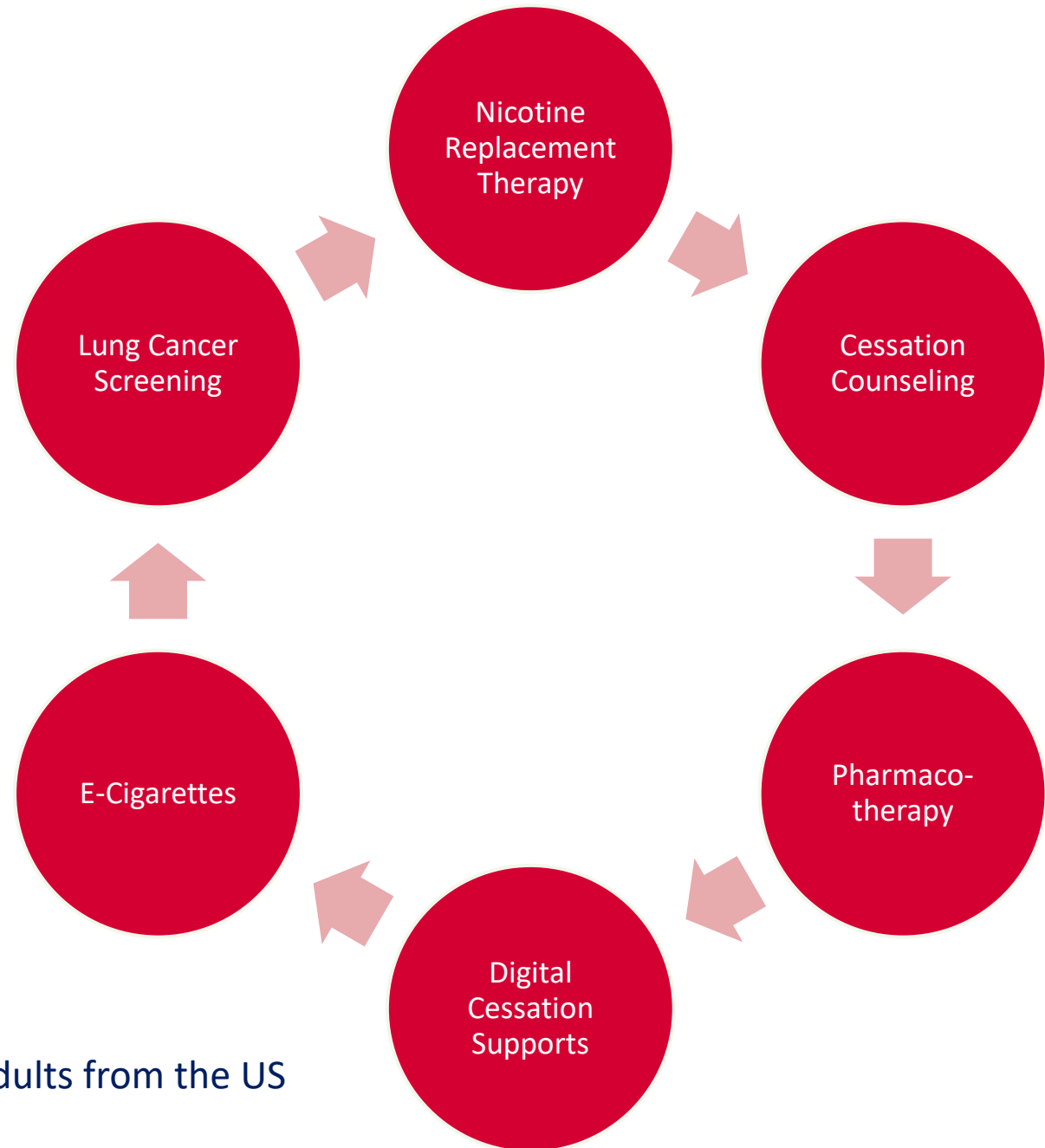
Excise Tax Revenue Collected from Electronic Cigarettes in Illinois and Wisconsin



Predictors of Smoking Abstinence among LGBTQ+ Adults



How do LGBTQ+ people engage in tobacco cessation treatment?



Using Waves 1-5 of QSNAPS data on LGBTQ+ adults from the US

Key Takeaways

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- Federal Tobacco 21 explains <20% of the decline in smoking among young adults aged 18-20 in recent years
- 21% of sexual minority young adults and 16% of heterosexual young adults use e-cigs/vapes, despite T21 prohibitions
- Adult smokers are not substituting to e-cigs/vapes as intended
- May 2026 FDA approved marketing of flavored nicotine products, expected to widen observed disparities

Thank you!

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