CATCH My Breath E-Cigarette Prevention Program: Background, Evidence, and Implementation

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Disclosures

I was a paid consultant for in litigation against Altria and JUUL Labs.

Overview

E-Cigarette Use among Youth

- Prevalence
- Health consequences
- Correlates

CATCH My Breath Program

- Theoretical framework
- Prior evaluations

Randomized Control Trial (RCT)

- Methods
- Results

Implications and Next Steps

E-Cigarette Use among Youth

Lifetime (ever) use of e-cigarettes in 2023

- **6th Grade:** 6.4%
- **7th Grade:** 9.2%
- **8th Grade:** 13.4%
- **9th Grade:** 17.7%

Past 30-day (current) use of e-cigarettes in 2023

- **6th Grade:** 3.0%
- **7th Grade:** 4.4%
- **8th Grade:** 6.3%
- **9th Grade:** 8.6%

Health consequences of nicotine during adolescence

Nicotine is an addictive stimulant and neurotoxin for developing brains

Nicotine exposure during adolescence is linked poor mental health outcomes, including depression and anxiety, during young adulthood

Earlier exposure predicts sustained use and dependence

Sizable proportion use additional tobacco products (i.e., dual/poly use)

Correlates of Youth E-Cigarette Use

Demographic Differences (current use in 2024)

- Equal prevalence among females (3.9%) than males (3.1%)
- Slightly higher among non-Hispanic Black (4.9%) and Hispanic (4.4%) relative to non-Hispanic White (2.8%)

Social-Cognitive Determinants

- Low harm perceptions
- High normalization of use
- Marketing exposure (and underlying media literacy)

CATCH My Breath (CMB) Program

Program Development

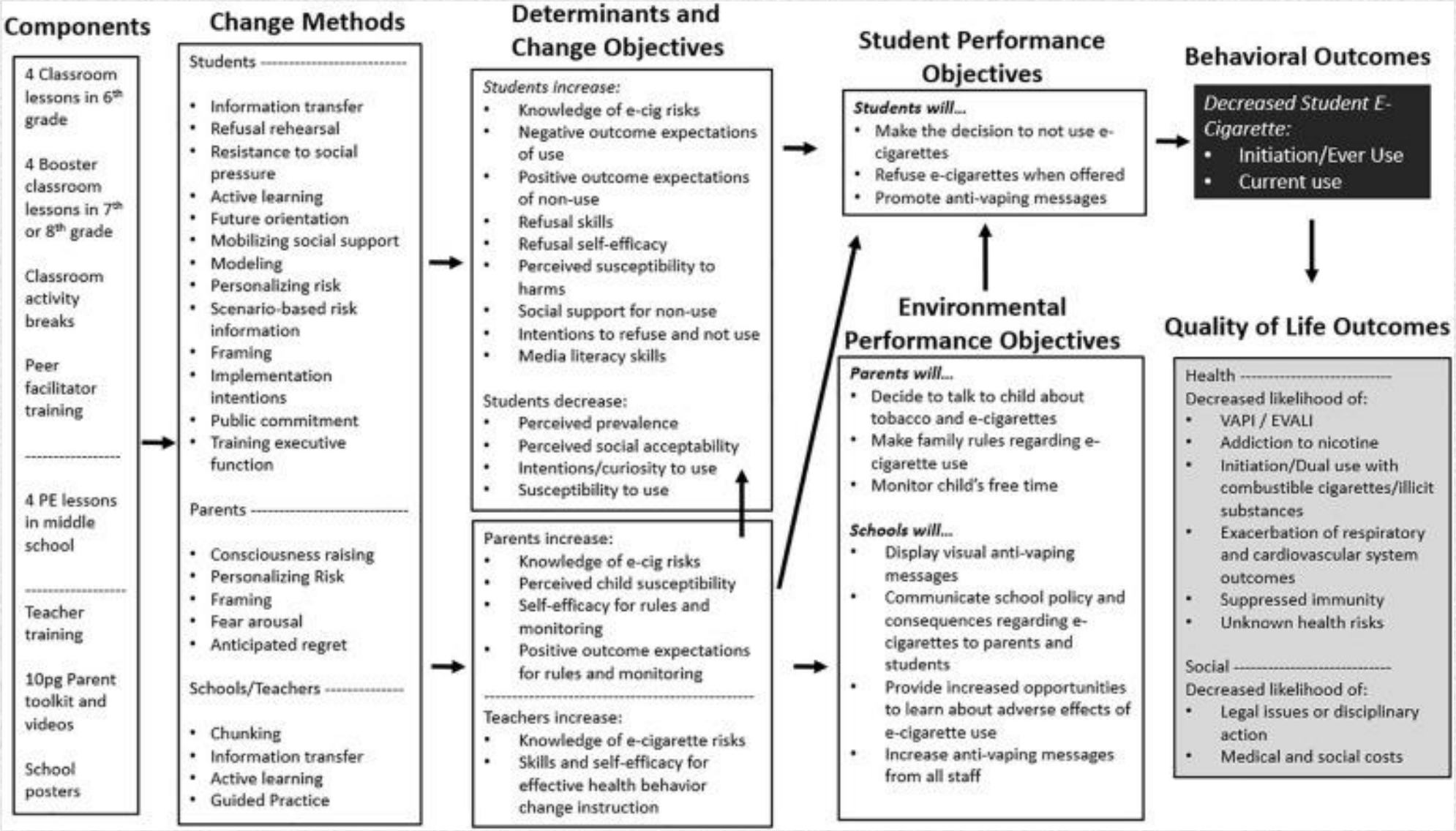
Social-Cognitive Theory Modules focus on:

- Knowledge
- Outcome expectations
- Normative beliefs
- Refusal skills
- Media literacy

Formative Testing among 193 school leaders

- 81% of middle schools did not have an e-cigarette program
- 74% rated an e-cigarette prevention as "highly important”
- 77% expressed interest in adopting an e-cigarette program

Intervention Mapping and Logic Model



Program Examples

CATCH MY BREATH

Less Harm ≠ Harmless

- Even though e-cigarettes are safer than regular cigarettes for current adult tobacco users, that doesn't mean they are safe.
- Like regular cigarettes, e-cigarettes contain nicotine and other chemicals that can harm you. Nicotine is not safe for young people.
- E-cigarette "vapor" has tiny particles of heavy metal and other chemicals that make it harmful.

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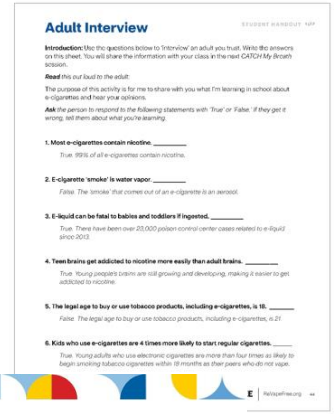
Assignment: Adult Interview



Adult Interview

Introduction: Mix the questions below to 'interview' an adult you trust. Write the answers on this sheet. You will share the information with your class in the next *CATCH My Breath* session.

Read this out loud to the adult:

The purpose of this activity is for me to share with you what I'm learning in school about e-cigarettes and hear your opinions.

Ask *the person to respond to the following statements with 'True' or 'False.' If they get it wrong, tell them about what you're learning.*

1. **Most e-cigarettes contain nicotine.** _____
   True. 99% of all e-cigarettes contain nicotine.
2. **E-cigarette 'smoke' is water vapor.** _____
   False. The 'smoke' that comes out of an e-cigarette is an aerosol.
3. **E-liquid can be fatal to babies and toddlers if ingested.** _____
   True. There have been over 23,000 poison control center cases related to e-liquid since 2013.
4. **Teen brains get addicted to nicotine more easily than adult brains.** _____
   True. Young people's brains are still growing and developing, making it easier to get addicted to nicotine.
5. **The legal age to buy or use tobacco products, including e-cigarettes, is 18.** _____
   False. The legal age to buy or use tobacco products, including e-cigarettes, is 21.
6. **Kids who use e-cigarettes are 4 times more likely to start regular cigarettes.** _____
   True. Young adults who use electronic cigarettes are more than four times as likely to begin smoking tobacco cigarettes within 18 months as their peers who do not vape.

"We talked about e-cigarettes today in school and I'd like you to share with you what I learned."

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Think-Pair-Share

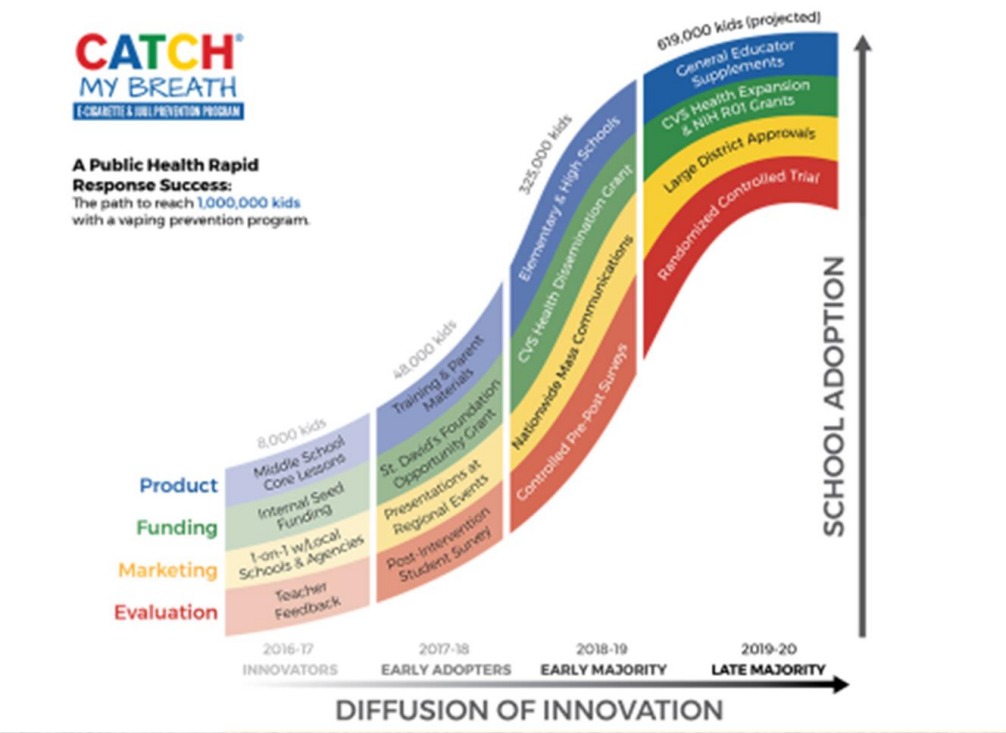
Middle Schoolers	High Schoolers
89.5% Don't Use	72.5% Don't Use
10.5% Use	27.5% Use

1. Why do you think a lot of kids guessed too high or too low?
2. Why do you think **most kids choose NOT** to use e-cigarettes?

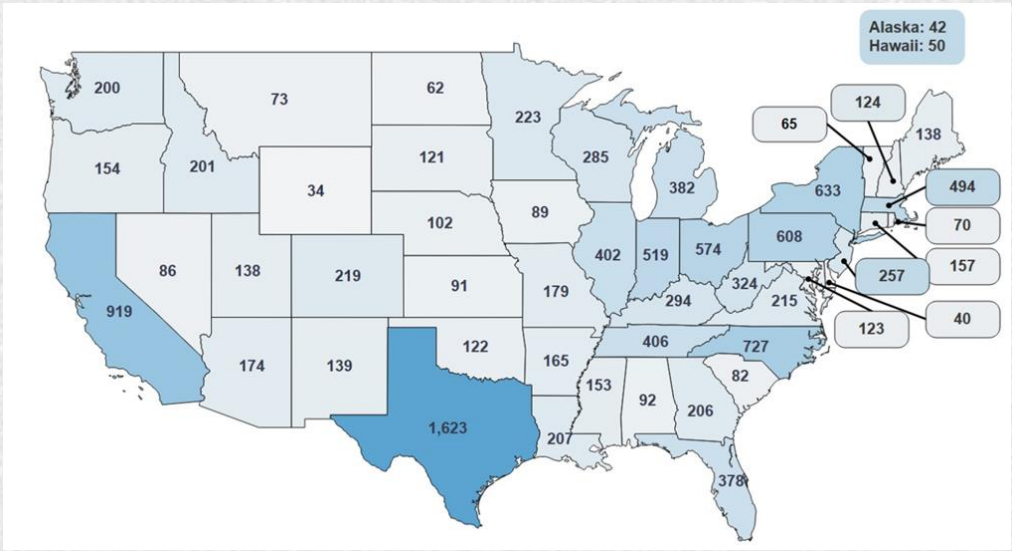
CATCH MY BREATH

Does this ad look like it would appeal more to kids or adults?

Program Implimentation

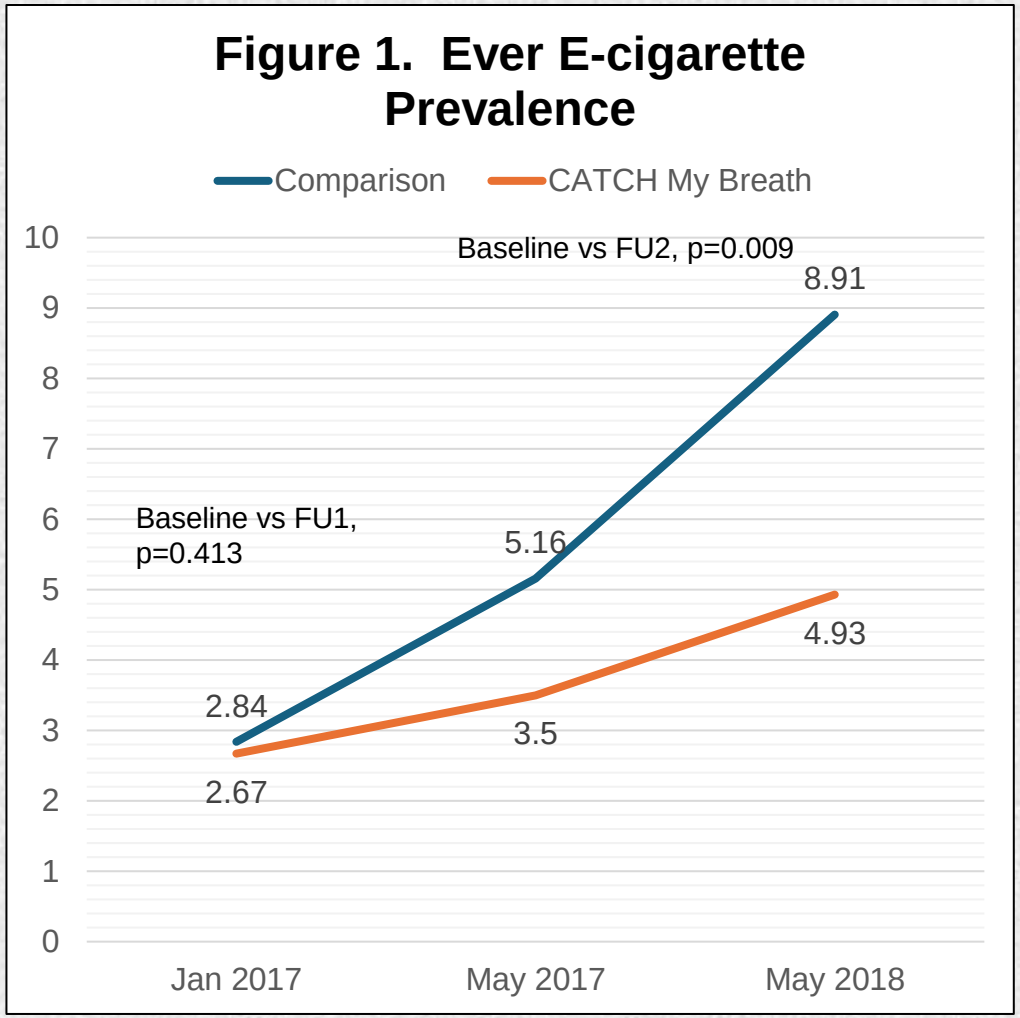


School Districts Teaching CATCH My Breath, by State.



Pilot Evaluation

- A sample of 19 public schools in Central Texas participated with implementing CMB in 6th grade.
- Of the 19 schools, 12 agreed to participate in a 7th-grade follow-up survey.
- Schools were closely matched on demographic characteristics.
- Positive intervention effects were found at 16-month follow-up, including:
- 46% fewer students reporting ever use of e-cigarettes (4.93% vs. 8.91%, p < .009)
- marginally significant reduction in susceptibility (p = .077)
- Past 30-day e-cigarette use (p = .107)
- increased knowledge (p = .008), and positive outcome expectations for remaining e-cigarette free (p = .019).



Randomized Control Trial (RCT) of CMB

We recruited n=2,054 6th grade students (at baseline) from n=23 Texas middle schools in 2020.

We collected 6 waves of data in 6-month intervals.

Schools were matched based on enrollment sociodemographic (e.g., Free/Reduced Lunch; Race and Ethnicity; English Language Learners)

We randomly assigned to receive CATCH My Breath (intervention) or a control (usual care) condition.

Multilevel analyses accounting for nesting of observations within participants and schools were conducted.

Primary outcome of interest was lifetime (ever) e-cigarette use.

Secondary outcomes were social cognitive determinants of e-cigarette initiation: (1) negative outcome expectations; (2) positive outcome expectations; (3) normative beliefs; and (4) refusal skills.

We conducted unadjusted models and models adjusting for race, ethnicity, sex, and school district.

Participants

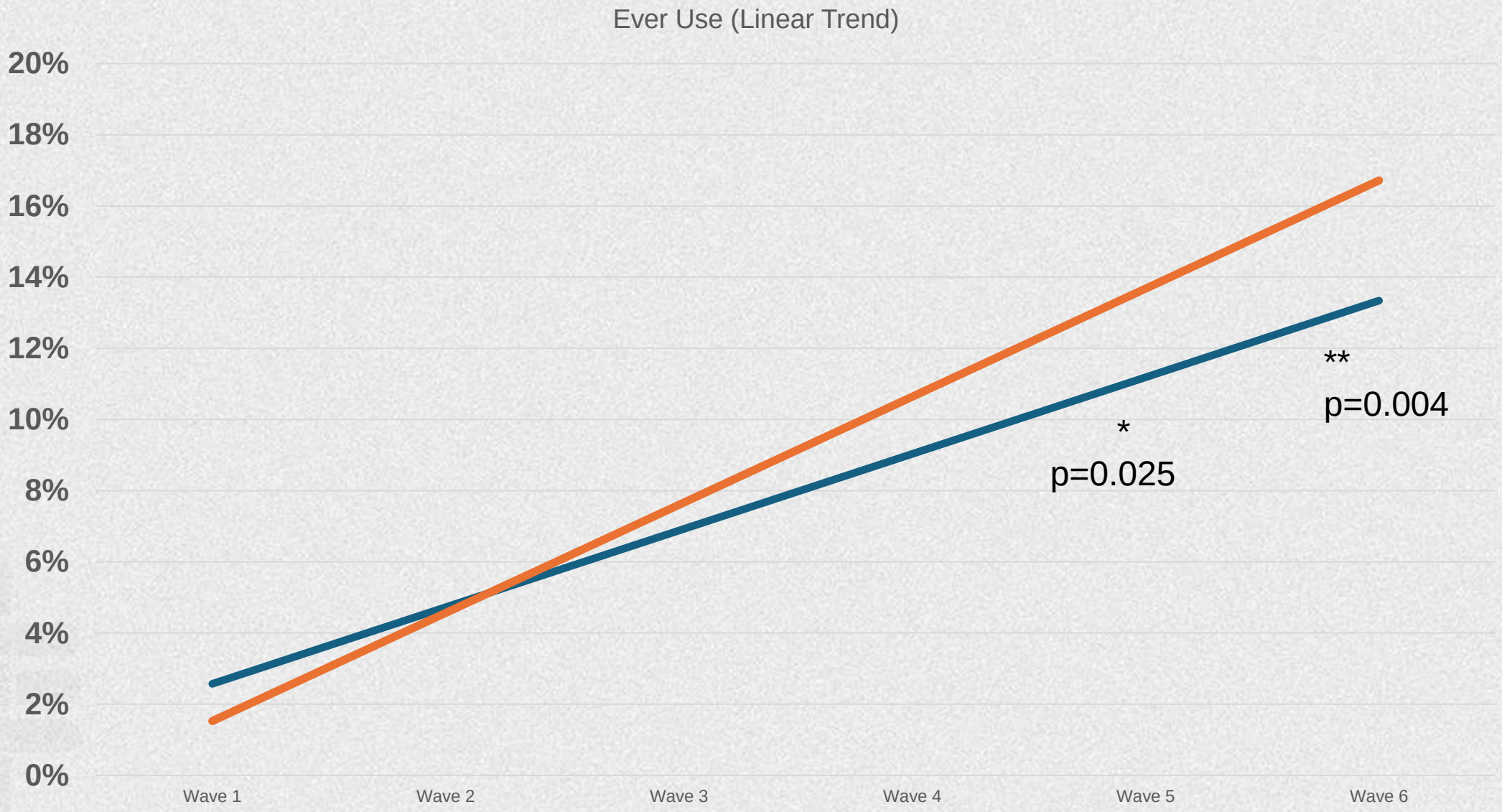
During recruitment, 60.4% were in the first round of recruitment and 39.6% in the second round

Sample demographics: 50.8% female and 49.2% male; majority Latino (55.2%), ~20.1% non-Hispanic White, and ~7.6% non-Hispanic Black.

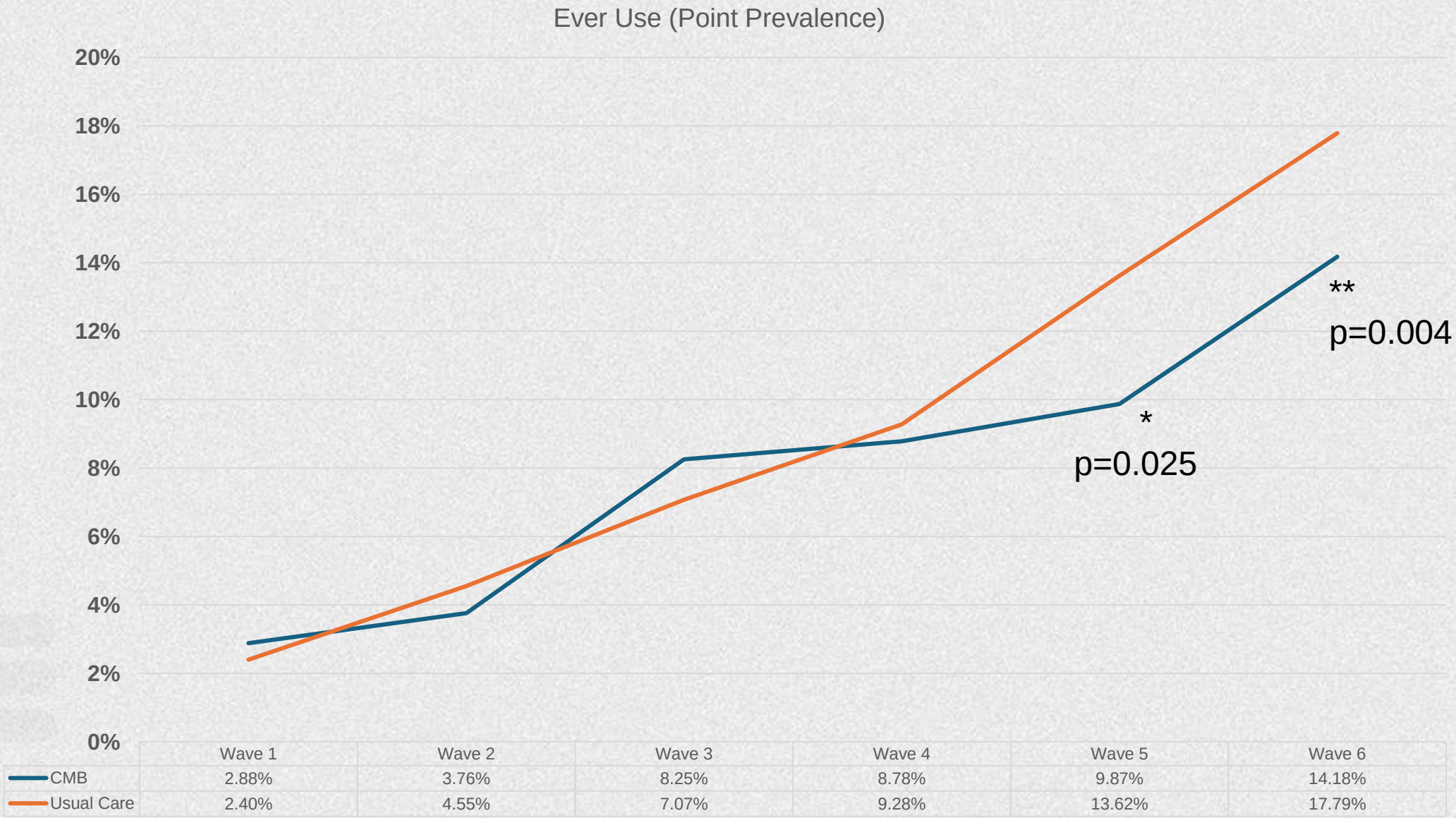
School demographics: 16 schools (69.6%) had +60% of enrollment receiving free/reduced lunch and 13 (50%) had +25% English Language Learners

These did not differ by treatment condition or recruitment category.

Initiation over time

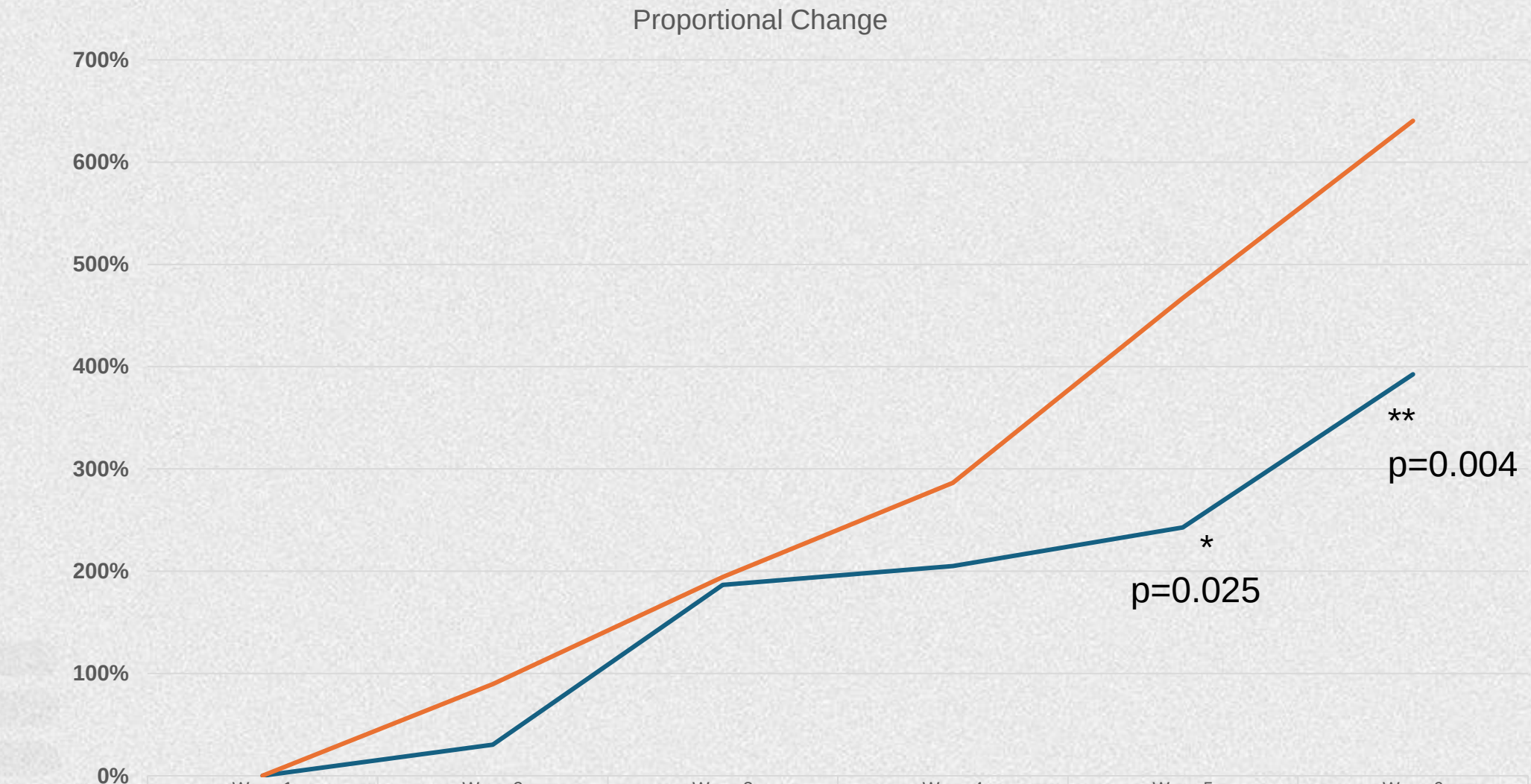


Initiation over time



	Wave 1	Wave 2	Wave 3	Wave 4	Wave 5	Wave 6
CMB	2.88%	3.76%	8.25%	8.78%	9.87%	14.18%
Usual Care	2.40%	4.55%	7.07%	9.28%	13.62%	17.79%

Proportional Change over Time



	Wave 1	Wave 2	Wave 3	Wave 4	Wave 5	Wave 6
CMB	0%	30.51%	186.64%	205.06%	242.89%	392.44%
Usual Care	0.00%	89.56%	194.32%	286.31%	467.13%	640.31%

Results

From 6th to 8th grade, prevalence of lifetime use of e-cigarettes increased from 2.8% to 14.1% among the CMB cohort and 2.4% to 17.8% among the control group; a 4.1% net difference.

Multi-level models found receiving the CMB program corresponded with nearly 4 times lower odds of e-cigarette initiation by 8th grade during the first semester (aOR: 0.26; $p=0.041$) and second semester (aOR: 0.24; $p=0.035$).

Effect sizes were consistent in unadjusted models and controlling for covariates.

Youth who received CMB had significantly greater increases in negative outcome expectations related to e-cigarette use ($b=0.07$; $p<0.001$) while those in the control condition reported greater increases in normative beliefs towards using e-cigarettes ($b=0.09$; $p=0.018$).

Additional Evaluations

West Virginia: declines in e-cigarette normative behaviors and past 30-day (current) use

- Burchfield, K., Doyle, D., Mantey, D., Bennett, T., & Baus, A. (2024). The CATCH My Breath Vaping Prevention Curriculum: An Evaluation of Impacts in Central Appalachian Middle and High Schools, 2019-2023. Journal of Primary Care & Community Health, 15, 21501319241277393.

Canada: improved knowledge and norms among high school students

- Cole, A. G., Fairs, L., Mantey, D., Philipneri, A., Degano, C., Bianco, M., & Kelder, S. H. (2024). The impact of the 'CATCH My Breath' vaping prevention curriculum among high school students in Ontario, Canada: Results of a pilot test. Preventive Medicine Reports, 48, 102919.

Teacher Perceptions: increase self-efficacy and professional development

- Moosbrugger, M., Losee, T. M., González-Toro, C. M., Drewson, S. R., Stapleton, P. J., Ladda, S., & Cucina, I. (2023). Pre-service teachers' perceptions and experiences implementing CATCH My Breath. American Journal of Health Education, 54(1), 20-28.

Federal Recommendations (SAMHSA)

- Substance Abuse and Mental Health Services Administration (SAMHSA): Reducing Vaping Among Youth and Young Adults. SAMHSA Publication No. PEP20-06-01-003. Rockville, MD: National Mental Health and Substance Use Policy Laboratory, Substance Abuse and Mental Health Services Administration, 2020.

Evidence of Success

Proven Effective

CATCH My Breath is an evidence-based youth vaping prevention program for grades 5-12 that has been proven to substantially reduce students' likelihood of vaping. The CATCH My Breath program effectiveness was published in a peer-reviewed journal and the program is listed in SAMHSA's Evidence-Based Resource Guide Series.

Learn More ▸

Robust Program & Resources

Developed by The University of Texas Health Science Center at Houston (UTHealth) School of Public Health, the vape education program includes grade-level specific and health education standards-aligned classroom curriculum alongside a variety of engaging supplemental materials including STEM/Humanities/PE extensions, self-paced modules, and virtual field trips.

Learn More ▸

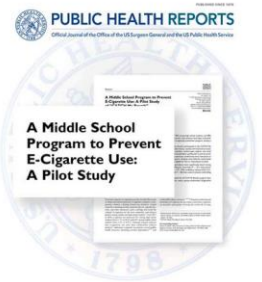
Training & Support

CATCH Global Foundation provides teacher and health educator trainings that help ensure facilitators are effective in the vape education program delivery. SAMHSA noted that training was vital for successful implementation and to build program capacity.

Learn More ▸

Evidence-Based

A peer-reviewed study of CATCH My Breath found that students in schools that implemented the program were half as likely to experiment with e-cigarettes over the following 16 months, compared with those in schools that did not receive the program. The publication of the findings in Public Health Reports – the official journal of the U.S. Surgeon General – makes CATCH My Breath recognized as an evidence-based youth vaping prevention program. The study also found the program increased student knowledge of vaping dangers and positive perceptions about choosing a vape-free lifestyle.



SAMHSA-Recognized

The Substance Abuse and Mental Health Services Administration (SAMHSA) recognized CATCH My Breath as the only recommended school-level youth vaping intervention in their Evidence-Based Resource Guide Series. SAMHSA noted that receiving training on CATCH My Breath was "vital" for successful implementation of the program and to build program capacity.

Want help developing a plan to use SAMHSA grant funds to implement tobacco youth prevention by CATCH My Breath in your community? Contact our program experts at info@catch.org.

Train the Trainer

Implement a virtual, train-of-trainer (TOT) model to bolster sustainability of the CMB program in the region.

Community-Based Mentoring: Instructed school staff and other organizations on how to implement CMB.

- The trainings provided guidance on how to disseminate the CMB program to local area schools.
- These efforts helped move the program along the diffusion of innovation curve.

Diffusion of Innovation Curve: Progressed from early adopters to the early majority

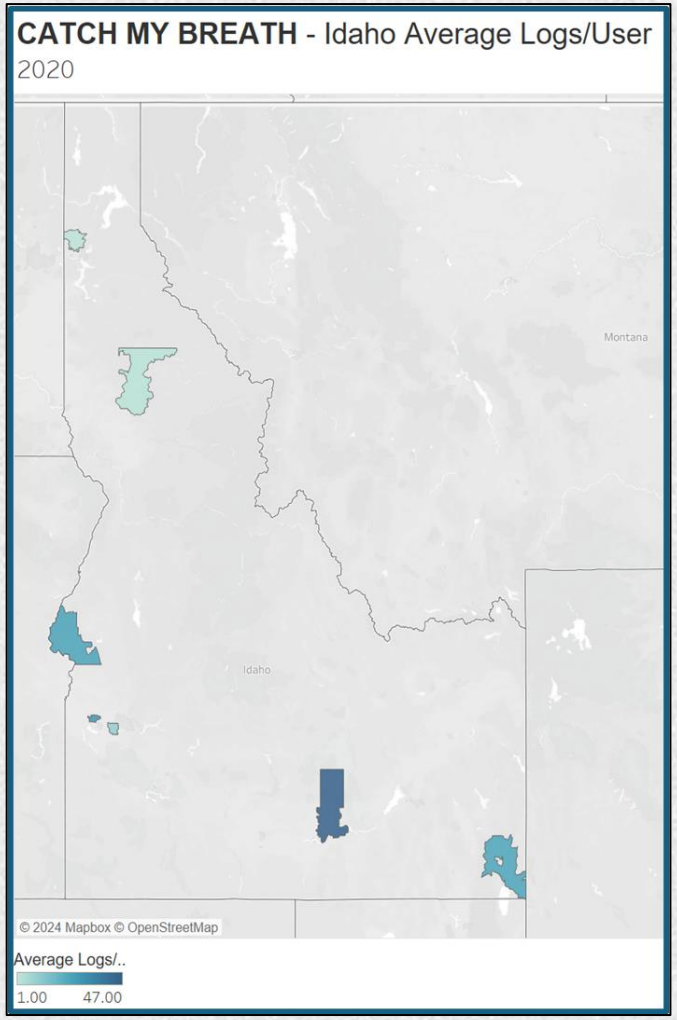
From 2022 to 2024, n=59 teachers completed the Train the Trainer Academy

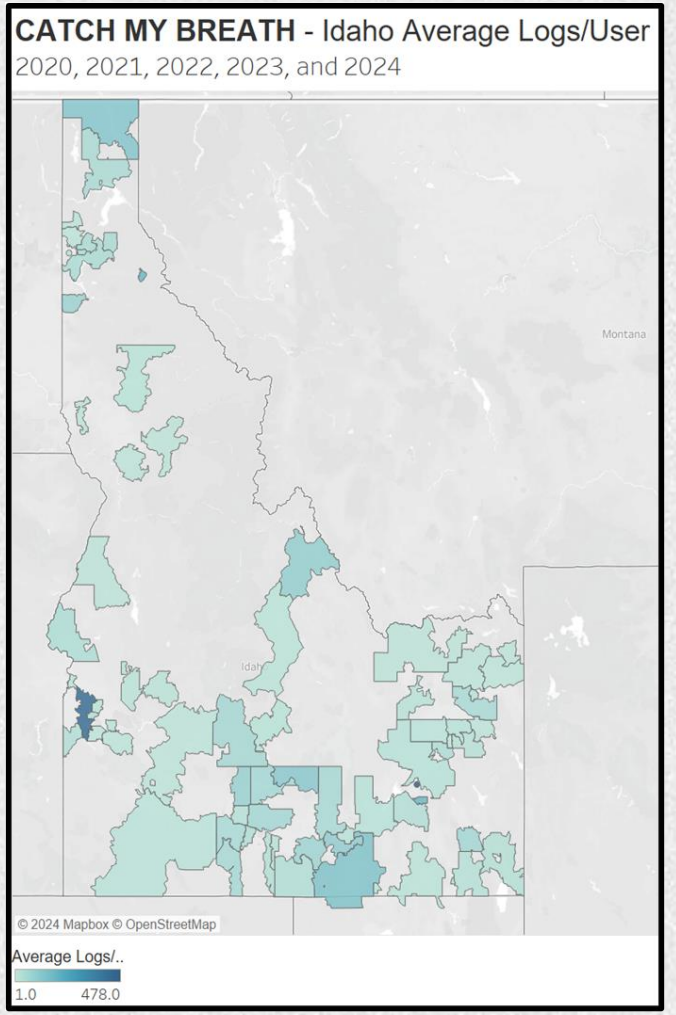
Implementation of the CMB school-based program increased over 300%

Expanded school reach from **42** to **179** across the state. Reached over 50,000 students statewide

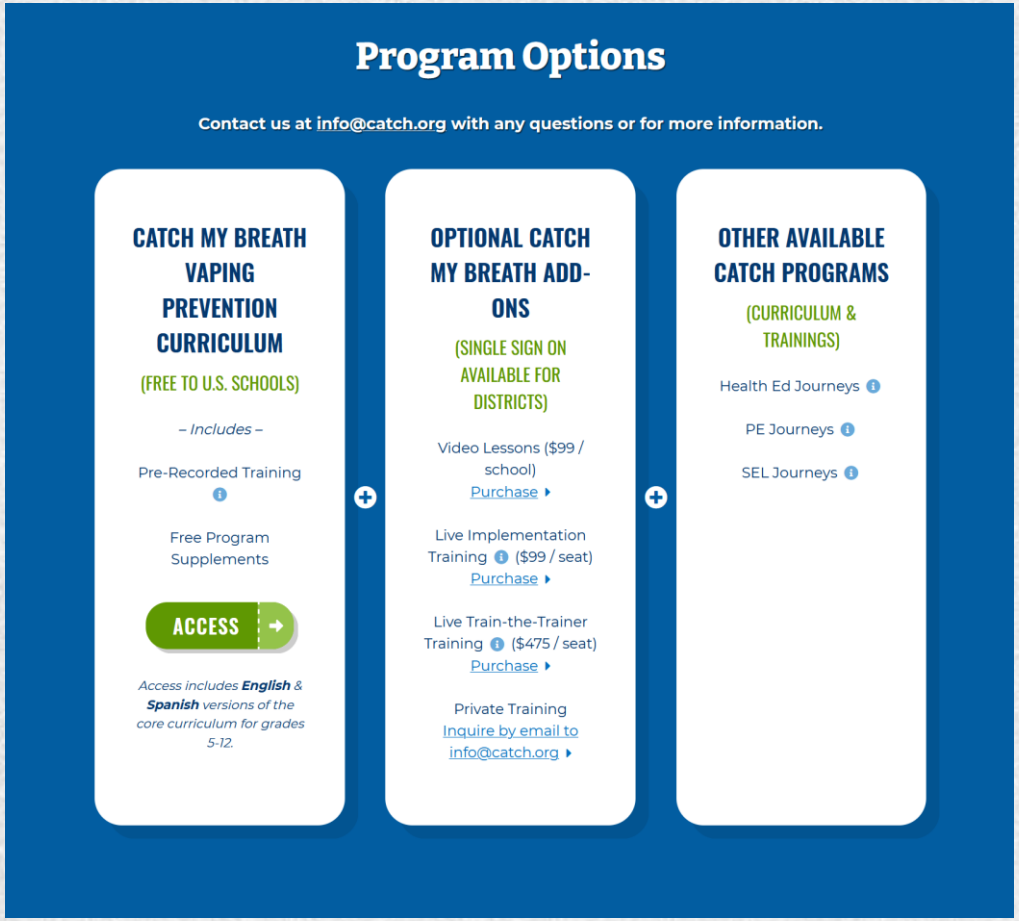
CATCH My Breath is now the statewide, school-based e-cigarette prevention program for the state of Idaho.

Train the Trainer and Sustainability





Program and Training



Program and pre-recorded trainings are **free of charge** to US schools

- Available in English and Spanish. *Portuguese by request*

Costs: video trainings; in-person trainings; and Train-the-Trainer

Cannabis prevention in pilot stage but is availaible

Conclusions

CATCH My Breath program is the first school-based program to demonstrate effectiveness in preventing and reducing youth ever e-cigarette use incidence using a randomized comparative effectiveness experimental design.

CATCH My Breath combines teacher-led content with peer-led activities and is rooted in Social Cognitive Theory.

The CMB program has been widely implemented in all 50 states and is undergoing pilot testing in 14 other nations (e.g., Canada, Colombia).

Thank you!

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CATCH My Breath: www.catch.org

https://catch.org/program/vaping-prevention/