

## Identifying Promising Directions for Teen E-cigarette Prevention Messages Among Hawai'i Teens

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**Aim:** As part of a larger vaping prevention media campaign evaluation, we examined key perceptions, beliefs, behaviors, and vaping susceptibility among teens in Hawai'i to identify promising directions for future vaping prevention messaging.

**Methods:** Teens aged 13-18 residing in Hawai'i were recruited via social media ads for two cross-sectional surveys in 2020 and 2021: Wave 1 (Feb '21-Mar '21)  $n = 212$  and Wave 2 (Dec '21-Feb '22):  $n = 219$ ). Primary recruitment took place via social media advertisements on Instagram/Facebook, Snapchat, and TikTok that linked to a mobile-friendly survey.

Survey items assessed perceived social norms, perceived prevalence, and harms of vaping, vaping behavior (current/past/ever use), and susceptibility. Surveys also included a series of vaping belief statements derived from existing literature and formative research<sup>1,2</sup> (5 pt scale, strongly agree – strongly disagree).

We reported weighted frequencies and proportions for perceived harms and social norms. Results were weighted to better reflect teens in Hawai'i by age, county, and gender. Agreement with belief statements was examined among teens who were not vaping. Promising beliefs were identified based on three criteria proposed by Hornik and Woolf<sup>2</sup>: strength of association between beliefs and intentions to vape, percentage to move, and percentage to gain. Beliefs with *high promise* were associated with intention to not vape in the future, had a high proportion of teens who could be moved to "strongly agree" with the belief statement, and showed promise to gain the greatest proportion of future intentions in the right direction. *Less promising* beliefs showed lower potential for changing intentions to vape.

### Results:

Perceived Harm. In Wave 2, the majority of teens perceived vaping as extremely (41%) or very (34%) harmful. However, this varied by teen vaping behavior and susceptibility. Non-susceptible teens had the highest perception of vaping as extremely harmful (69%) while current vapers had the lowest adoption of this belief (23%). See accompanying poster for additional details.

Social Norms. Across both waves, frequently shared how prevalent vaping is. While actual prevalence of vaping among Hawai'i teens is 26.3%,<sup>3</sup> over two thirds of teens estimated vaping prevalence to be much more common (41% or much higher).

Promising Beliefs. Vaping belief statements were analyzed to identify promising beliefs associated with lower intention to vape and the greatest potential for increasing intention not to vape (Hornik & Woolf, 1999). Each belief's percentage to gain is reported in the following table.

Vaping Belief Statements with Percent to Gain Reported by Survey Wave:	Wave 1	Wave 2
The personality changes associated with nicotine addiction are noticeable to other teens.	--	22%**
Vaping is not an effective way to reduce stress.	23%**	22%**
Vape juice and vapor contain toxic metal particles, like lead, that can damage the brain.	11%	19%**
Sharing vapes could mean sharing nicotine addiction and other health risks.	--	19%**
Vape flavors are made using chemicals such as Cinnamaldehyde and Vanillin, which may sound harmless but are toxic to human cells.	--	18%
People who vape may be exposed to formaldehyde, a cancer-causing chemical.	10%	18%
Once teens start vaping, it can be hard to stop even if they wanted to.	13%	17%
Vaping nicotine can cause changes in the brain that put teens at risk for mood disorders like anxiety and depression.	9%	17%
Chemicals in vapes can mess up your lungs' defenses, leaving you open to serious illnesses like the flu and COVID-19.	--	17%
Vaping is an expensive habit that can cost you around \$1,500 or more a year.	--	17%
The nicotine in vapes can harm teen brain development, affecting attention and learning.	15%**	17%
Vaping can damage your lungs, leading to breathing issues like asthma.	5%#	16%
Vaping can weaken a person's immune system.	14%**	--
Vapes create plastic and toxic waste from the chemicals and batteries inside that are bad for the environment.	--	13%#
Teens who vape are manipulated by the tobacco companies.	--	13%#
The nicotine in vapes can make people feel dizzy and have headaches.	3%#	12%#
Most people my age dislike it when their friends vape.	0%#	--
** Highly promising belief for this Wave # Least promising belief for this Wave		

### Key Takeaways:

- Messages that emphasize **additional adverse effects beyond long-term health effects** (e.g., addiction and lack of stress reduction) are likely to resonate and influence future vaping behavior. **Addiction** was also the most common reason for quitting.
- There is **still a need for messaging to influence teens' harm perceptions** of vaping, especially among teens who are highly susceptible or already vaping.
- Social norms is a relatively underutilized approach with potential to impact teens. **Addressing social misperceptions of vaping** (i.e., emphasizing that vaping is actually less prevalent than teens estimate) is an important consideration for future messaging.
- Consistent with recent national research on effective vaping messages, **beliefs about industry manipulation and environmental impact were less promising** for Hawai'i teens (Boynton et al., 2022).

### References:

1. Sangalang, A., Volinsky, A. C., Liu, J., Yang, Q., Lee, S. J., Gibson, L. A., & Hornik, R. C. (2019). Identifying potential campaign themes to prevent youth initiation of e-cigarettes. *American Journal of Preventive Medicine*, 56(2), S65-S75
2. Hornik, R., & Woolf, K. D. (1999). Using cross-sectional surveys to plan message strategies. *Social Marketing Quarterly*, 5(2), 34-41. doi: 10.1080/15245004.1999.9961044
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