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Teen Vaping Initiation in Minnesota

Teen smoking and use of other conventional tobacco products are at historic lows, but the rise of e-cigarettes threatens the health of Minnesota's youth just when a tobacco-free generation is within reach. E-cigarettes are battery-powered devices that allow users to inhale, or "vape," aerosolized liquid ("e-juice"). Nearly all e-cigarettes contain nicotine.ⁱ Nicotine is highly addictive, and exposure during adolescence can harm brain development, causing lasting deficits in learning, memory and attention, and increasing risk for future addiction to other substances.ⁱⁱ

Monitoring e-cigarette initiation is important, because experimentation with tobacco products can lead to nicotine addiction and regular use. According to a report of the U.S. Surgeon General, studies suggest that adolescents exhibit heightened sensitivity to the rewarding effects of nicotine, decreased sensitivity to the aversive effects, and as a result teens may be particularly vulnerable to e-cigarette addiction.ⁱⁱⁱ

One in two high school seniors have tried vaping

The 2017 Minnesota Youth Tobacco Survey (MYTS)^{iv} revealed that one in four middle school and high school students (25.9 percent) reported having tried an e-cigarette at least once (**Figure 1**). The portion of students that had tried e-cigarettes increased with each grade in school. In 2017, about one in two high school seniors had tried e-cigarettes (**Figure 2**). A larger portion of students had tried e-cigarettes than conventional cigarettes (25.9 percent vs. 20.2 percent).

WHAT IS JUUL?



JUUL is a new kind of e-cigarette. It delivers cigarette-like levels of nicotine, has a small concealable size, minimal scent and plume, and can be mistaken for a harmless USB flash drive. Teens use the term "juuling" rather than vaping to describe its use, distancing the product from conventional tobacco and other e-cigarettes.

Launched in 2015, JUUL made huge gains in market share while the 2017 MYTS was in the field.

The survey instrument was developed before JUUL became popular and does not mention JUUL or juuling. Students may not have included JUUL when answering questions about e-cigarettes. As a result, the 2017 MYTS may underestimate e-cigarette use among Minnesota teens.

Figure 1. Percent of students that tried an e-cigarette

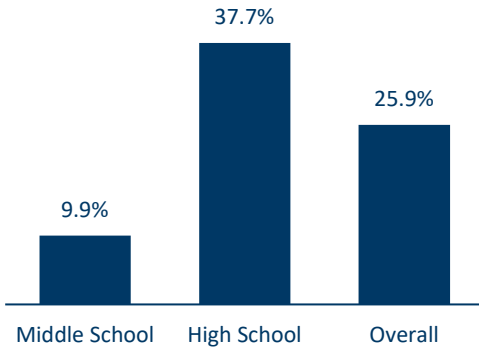
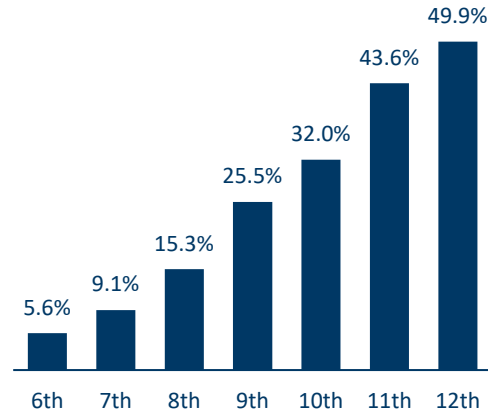


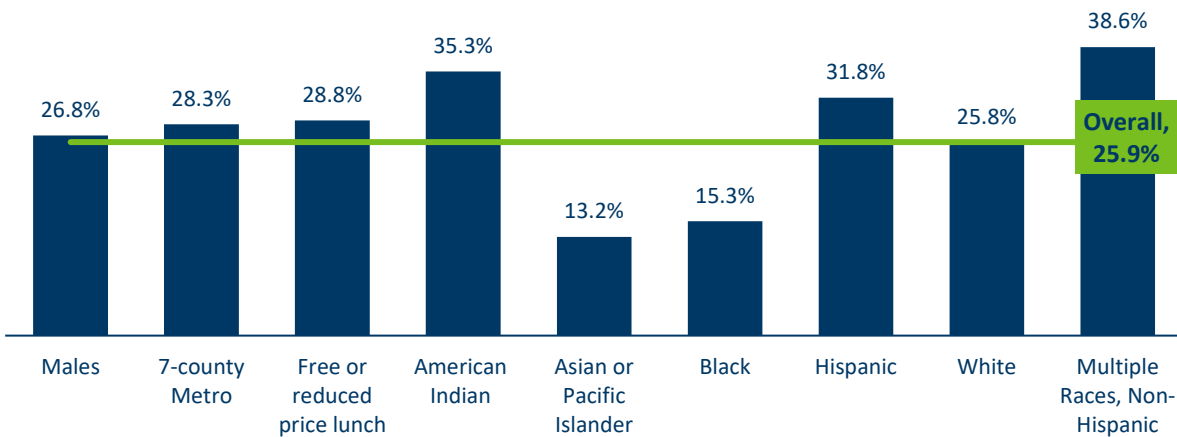
Figure 2. Percent of students that tried an e-cigarette, by grade in school



Vaping appeals to many teens

Vaping appears to have broad appeal among students. Slight disparities in vaping initiation exist based on sex, region, and receipt of free or reduced-price lunch (an indicator of lower income) (**Figure 3**). Larger disparities exist among racial and ethnic groups. A larger share of students that identified as American Indian, Hispanic, or multiple races (non-Hispanic) reported having ever used e-cigarettes (**Figure 3**). These patterns among subgroups are consistent with the 2016 Minnesota Student Survey data on past 30-day use of e-cigarettes.

Figure 3. Disparities in e-cigarette initiation



Teens who try vaping are likely to become regular users

Use of tobacco in the past 30 days can be an indication of more regular use. In 2017, half of Minnesota students that had ever tried e-cigarettes also used them in the past 30 days (Figure 4), a higher rate of current use among initiators than was observed for other tobacco products.

Studies show that students who report they would definitely not use an e-cigarette offered to them by a friend are less likely to use e-cigarettes in the future. Conversely, students who lack this firm commitment to refuse e-cigarettes are more likely to use e-cigarettes in the future.^v In 2017, 93.1 percent of Minnesota students that had tried e-cigarettes lacked this firm commitment and were susceptible to future use (Figure 5). In contrast, only 23.8 percent of students that had never tried e-cigarettes were susceptible to future use.

Summary

The popularity of e-cigarettes among Minnesota youth has reversed a 17-year downward trend in youth tobacco use. E-cigarettes contain nicotine and are not safe for youth, yet in 2017 one in four middle and high school students in Minnesota, and one in two high school seniors, reported having tried e-cigarettes. Among students who had tried e-cigarettes, half had used them in the past 30 days, possibly indicating use that is more regular. More than nine out of ten students that had tried e-cigarettes are susceptible to future use. Effective and widespread interventions are needed to reduce the number of students that try and are harmed by e-cigarettes.

Figure 4. Among students who tried a product, the percent that used the product in the past 30 days

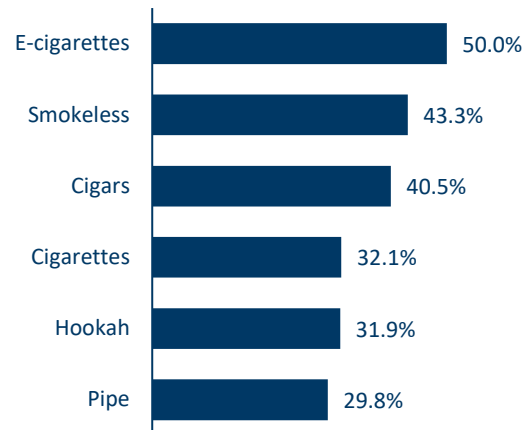
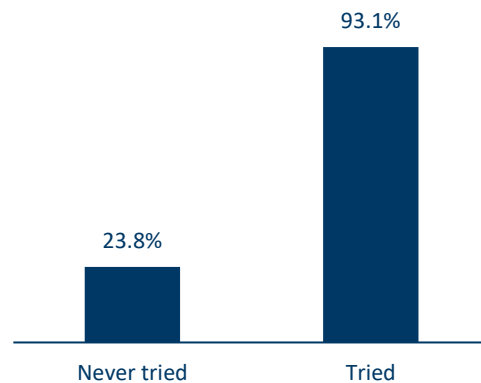


Figure 5. Percent of students that are susceptible to using e-cigarettes in the future, by initiation status



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TEEN VAPING INITIATION IN MINNESOTA

For questions, to request Minnesota Youth Tobacco Survey data, or to obtain this document in a different format please contact the Minnesota Center for Health Statistics.

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ⁱ Marynak, K. L., Gammon, D. G., Rogers, T. Coats, E. M., Singh, T., & King, B. A. (2017). Sales of nicotine-containing electronic cigarette products: United States, 2015. *American Journal of Public Health, 107*(5), 702-705.

ⁱⁱ Minnesota Department of Health (2018). Health advisory: nicotine risks for children, teens, and pregnant women. (Available online: http://www.health.state.mn.us/divs/hpcd/tpc/topics/nicotine_docs/2017nic_advisory.pdf)

ⁱⁱⁱ U.S. Department of Health and Human Services. *E-Cigarette Use Among Youth and Young Adults. A Report of the Surgeon General*. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 2016.

^{iv} Evered, S. R. (2018). Teens and tobacco in Minnesota: Highlights from the 2017 Minnesota Youth Tobacco Survey. St. Paul, MN: Minnesota Center for Health Statistics, Minnesota Department of Health.

^v Kowitt, S. D., Osman, A., Ranney, L. M., Heck, C. & Goldstein, A. O. (2018). E-cigarette use among adolescents not susceptible to using cigarettes. *Preventing Chronic Disease, 15*(18), 1-10.