

E-CIGARETTES: WHAT HAVE WE LEARNED AND WHAT DO WE NEED TO KNOW?

Electronic cigarettes (e-cigarettes) are battery powered devices that provide nicotine, flavorings, and other additives to the user in the form of an aerosol.

Constituents and users' exposure to toxicants

- E-cigarettes can deliver as much nicotine as a pack of cigarettes.
- Completely switching to e-cigarettes from regular use of conventional cigarettes can reduce exposure to toxic chemicals. However, it should be noted that e-cigarettes are not harmless; in addition to nicotine, e-cigarettes contain and emit numerous potentially toxic substances including heavy metals, volatile organic compounds, tobacco-specific nitrosamines, aldehydes, phenolic compounds, and polycyclic aromatic hydrocarbons.

Role in smoking cessation and initiation

- More research is needed to evaluate their value as smoking cessation aids.
- Use increases the probability of youth or young adults transitioning to conventional cigarettes; according to a recent report, e-cigarette use among youth increased the risk of later daily cigarette smoking by threefold.

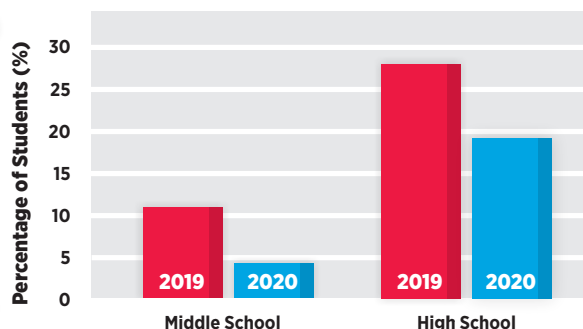


Use

- Use is highest among youth and young adults and most young users prefer flavored e-cigarettes such as fruit, menthol, and mint.
- Use among middle and high school students rose at an alarming rate between 2011 and 2019; while it is encouraging that between 2019 and 2020 use has declined in both populations, public health professionals are now concerned about the recent increase in popularity of disposable devices.



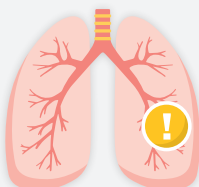
CURRENT USE OF E-CIGARETTES



Human health effects

Immediate health hazards

- Intentional or accidental exposure to e-liquid (from drinking or other contact) can have serious adverse health effects.
- E-cigarettes can explode causing burns and other injuries.
- There have been cases of seizures following e-cigarette use, mostly in youth and young adults.
- Vitamin E acetate, an additive in some tetrahydrocannabinol (THC)-containing e-cigarettes, can cause serious lung injuries. THC is the primary psychoactive ingredient in marijuana.



Long-term adverse effects

- There are indications that vaping can pose significant risks to vascular and respiratory health. Even former users are at a 28 percent higher risk for respiratory diseases compared to never users, according to a new study.
- Preliminary data indicate that several carcinogens known to be linked to bladder cancer are present in the urine of e-cigarette users.
- There is an urgent need for additional research to characterize definitively the long-term health risks, including cancer, cardiovascular and pulmonary diseases, and pregnancy outcomes.

