

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 (66). By December 2017, JUUL held the largest market share of any e-cigarette in the U.S. (67).

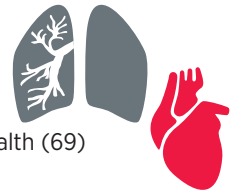
Constituents

- In addition to nicotine, they contain and emit numerous potentially toxic substances including heavy metals, volatile organic compounds, tobacco-specific nitrosamines, aldehydes, phenolic compounds, and polycyclic aromatic hydrocarbons
- One JUUL pod delivers as much nicotine as a pack of cigarettes; exposure to other toxic substances is lower



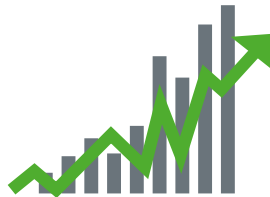
Human health effects

- There are early indications that vaping can pose significant risks to heart health (69)
- There is an urgent need for additional research to evaluate long-term health risks, including cancer, cardiovascular and pulmonary diseases, and pregnancy outcome



Use

- Highest among youth and young adults
- Use among high-school students: 1.5% in 2011 to 21% in 2018 (68)



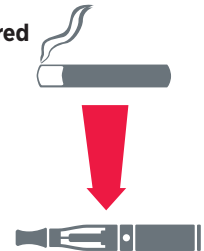
Role in smoking cessation and initiation

- More research is needed to evaluate their value as smoking cessation aids
- Increases the probability of youth transitioning to conventional cigarettes



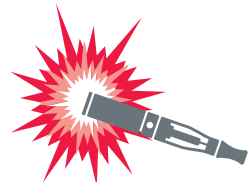
Possible harm reduction compared to combustible tobacco

- Completely switching to e-cigarettes from regular use of conventional cigarettes can reduce exposure to toxic chemicals



Poisoning, injuries, and other 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
- The FDA and CDC are aware of and investigating the causes of numerous cases of seizures and severe lung illnesses following e-cigarette use, mostly in youth and young adults (70)



FDA, U.S. Food and Drug Administration; CDC, Centers for Disease Control and Prevention. Adapted from (7)