



Background:

Electronic Cigarettes are handheld devices that contain nicotine, flavoring chemicals and other additives. Electronic Cigarettes are known by many names including e-cigs, electronic nicotine delivery systems, JUUL's, and vaping devices. E-cigarettes work by heating up a liquid or "E-juice" to a very high temperature which then creates an aerosol which is inhaled by the user. E-cigarettes have been the most commonly used tobacco product among middle and high school students since 2014 and their use has been increasing both nationally and in Wisconsin. Between 2014 and 2018, there was a 154% increase in e-cigarette use among Wisconsin youth. Currently over 1 in 5 Wisconsin high school students use e-cigarettes. E-juice flavorings are known to be extremely appealing to high-school students with 89% saying they "would not use unflavored e-cigarettes" ¹

Harms of E-Cigarettes on Adolescents

Nicotine: Similar to traditional cigarettes, nicotine is the chemical in E-cigarettes that leads to addiction. The adolescent brain continues to develop through the age of 25 and is extremely sensitive to nicotine. Exposing the developing adolescent brain to nicotine leads to a 're-wiring' of the brain which allows teens to become more easily addicted to nicotine than adults. In fact, more than 95% of adult smokers started smoking before the age of 21. In addition to being addictive, nicotine is also directly harmful to teenagers; increasing their risk of mood disorders, difficulties with attention and cognition, and also increasing their risk of addiction to other illicit substances ²

Toxic Chemicals: Emissions from e-cigarettes are known to contain numerous harmful chemicals and toxins. Similar to secondhand smoke, e-cigarettes release carcinogens, chemicals, and heavy metals like cadmium, nickel, and lead. These toxins can deposit in the lungs and be absorbed into the body. Since there are no federal standards for e-cigarettes, the exact makeup of e-cigarette toxins is unknown and varies between manufacturers. Because E-cigarettes are a new entity, long-term safety data is not available but there have been studies in animals showing a link between e-cigarette use and lung cancer. ³

Acute Lung Injury: Vaping has also led to the current epidemic of EVALI (E-cigarette or Vaping Associated Acute Lung Injury). These cases appear to be closely tied to Vitamin E Acetate which is added as a thickening agent to e-juice that contains THC (the psychoactive component of marijuana). ⁴

¹ High School Snapshot Youth Tobacco Survey 2018. Wisconsin Department of Health Services Accessed website on December 10, 2019. <https://www.dhs.wisconsin.gov/publications/p01624.pdf>

² B.P. Jenssen, S.C. Walley, Section on Tobacco Control. E-cigarettes and similar devices. *Pediatrics*, 143 (2019). DOI: <https://doi.org/10.1542/peds.2018-3652>

³ Tang MS, Wu XR, Lee HW, et al. Electronic-cigarette smoke induces lung adenocarcinoma and bladder urothelial hyperplasia in mice. *Proc Natl Acad Sci U S A* 2019;116:21727–31

⁴ Blount BC, Karwowski MP, Shields PG, et al. Vitamin E Acetate in Bronchoalveolar-Lavage Fluid Associated with EVALI. *N Engl J Med*. 2019; (25): 2381-2486.

Harmful Health Effects of Tobacco on Young Children

Tobacco use in adults can lead to a myriad of medical problems in neonates and infants including preterm birth, low birth weight, congenital malformations and sudden infant death syndrome (SIDS). In children and adolescents, tobacco smoke exposure can contribute to obesity, behavioral problems, wheezing, pneumonia, reduced lung function and cancer. There is no level of tobacco smoke that is considered safe.⁵

Position:

The Wisconsin Chapter of the American Academy of Pediatrics (WIAAP) supports the following recommendations:

1. Enforce the new federal ban on the sale of all tobacco products including e-cigarettes to children and youth under age 21
2. Expand current smoke-free laws to include e-cigarettes to protect the harmful effects of secondhand e-cigarette exposure
3. Prohibit advertising of tobacco products to children including the promotion of e-cigarettes on traditional media (broadcast, print) as well as internet-based media
4. Ban the use of all flavoring agents (including menthol, candy, and fruit flavors) in ALL tobacco products as these increase the appeal to children and adolescents
5. Regulate the sale of e-cigarettes by applying excise taxes to the purchase of e-cigarettes

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⁵ Harold J. Farber, MD, MSPH, FAAP Kevin E. Nelson, MD, PhD, FAAP and Section on Tobacco Control. Public Policy to Protect Children From Tobacco, Nicotine, and Tobacco Smoke. *Pediatrics* 2015;136:998. DOI: 10.1542/peds.2015-3109