

## **Washoe County Health District Position Statement on Electronic Cigarettes**

The Washoe County Health District (WCHD) protects and enhances the physical wellbeing and quality of life for all citizens of Washoe County through providing health information, disease prevention, emergency preparedness, and environmental services. The WCHD Chronic Disease Prevention Program has worked to reduce the burden of tobacco use and nicotine addiction in Washoe and the State of Nevada for over 15 years. The recent growth in the sales and use of electronic cigarettes (e-cigarettes) has alarmed public health advocates, and this statement serves to summarize the available information on e-cigarettes and the WCHD position on their use.

E-cigarettes are considered electronic nicotine delivery systems (ENDS) and are battery-operated devices, often designed to resemble a cigarette, that deliver and emit a nicotine-containing aerosol. They are commonly referred to as e-cigs, e-hookahs, hookah pens, vapes, vape pens, vape pipes, or mods. There are disposable and rechargeable models and some have refillable systems that hold a larger volume of the e-cigarette liquid (e-liquid) and heat the e-liquid to higher temperatures. The heated e-liquid forms an aerosol that contains high concentrations of ultrafine particles that are inhaled and exhaled by the user. Nicotine and other chemicals in the aerosol are absorbed through the blood stream and delivered directly to the brain and all body organs.<sup>1</sup> Using an e-cigarette is commonly referred to as vaping, referencing the “vapor” or aerosol that is inhaled and exhaled by the user.

### **Safety and Health Effects of E-Cigarettes**

Analyses of e-liquids by the Food and Drug Administration (FDA) in 2009 found variability in the consistency of the levels of nicotine between different products with the same label. Studies indicate that e-cigarettes do not just emit “harmless water vapor,” but typically, contain nicotine, flavoring agents, propylene glycol and toxic chemicals known to cause cancer, birth defects and other reproductive harm.<sup>2,3</sup>

At least ten chemicals identified in e-cigarette aerosol are classified as carcinogens and reproductive toxins. In addition to nicotine, e-cigarette aerosol contains varying levels of:

- Propylene Glycol (formaldehyde & acetaldehyde)
- Glycerin
- Tin Particles
- Aluminum, Iron, Nickel, Arsenic, Copper, Lead
- Carcinogenic Compounds
- Volatile Organic Compounds<sup>4</sup>

Although propylene glycol is FDA approved for use in some products, the inhalation of vaporized nicotine in propylene glycol is not. Studies show that heating propylene glycol

changes its chemical composition, producing small amounts of propylene oxide, a known carcinogen.<sup>5</sup>

John Hopkins Bloomberg School of Public Health researchers demonstrated that e-cigarettes lower immunity for flu viruses and Strep bacteria.<sup>6</sup> The study also concluded that free radicals in the vapor are damaging enough that vaping may be harmful even if nicotine isn't in the vapor.<sup>7</sup>

Moreover, secondhand e-cigarette aerosol contains nicotine, ultrafine particles and low levels of toxins that are known to cause cancer. Exposure to fine and ultrafine particles can exacerbate respiratory ailments like asthma, and constrict arteries which can trigger a heart attack.<sup>8</sup>

### **Use Among Youth and Liquid Nicotine Poisonings**

The number of youth who have used e-cigarettes, but have never smoked regular cigarettes, has more than tripled in the past three years. These youth are almost twice as likely to intend to smoke regular cigarettes as those who have never used cigarettes.<sup>9</sup>

In 2014, the CDC found that the number of calls to poison centers involving e-cigarette liquids containing nicotine rose from one per month in September 2010 to 215 per month in February 2014.<sup>10</sup>

In Nevada, a total of 21 calls were received from Nevada residents related to e-liquid ingestion or exposure in 2013. Ten of those calls were for children under six years old. In 2014, calls doubled to 44 and more than 70% of those calls were for children under six years old.<sup>11</sup> Although no deaths were reported, half of those callers went to a medical facility for treatment.

### **Cessation and Harm Reduction Claims**

E-cigarettes are not FDA-approved cessation aids. No scientific evidence shows e-cigarettes help smokers successfully quit traditional cigarettes. E-cigarette users are no more likely to quit than regular smokers, with one study finding 89% of e-cigarette users still using them one year later. These studies suggest that e-cigarettes are effectively inhibiting people from successfully kicking their nicotine addiction.

In addition, dual use of cigarettes and e-cigarettes is continuing to rise, which may diminish any potential benefits of cutting back on traditional cigarettes.<sup>12</sup> Continuing to smoke traditional cigarettes, while also using e-cigarettes, does not reduce the cardiovascular health risks.<sup>8, 13, 14</sup>

## Recommendations

- In the absence of FDA regulation, Nevada should take the opportunity in the 2015 legislative session to regulate e-cigarettes. Recommendations include legislation to treat e-cigarettes like tobacco products by implementing the following:
  - Limit purchasing of e-cigarettes by minors
  - Create a tax structure for these products
  - Prohibit the use of e-cigarettes in locations where combustible cigarettes are currently prohibited
- Only FDA-approved nicotine replacement therapies should be used, such as telephonic quit lines, and other evidence-based interventions for smokers who want to stop smoking or nicotine addiction
- Electronic cigarettes should not be used around non-smokers, by pregnant women, or in the presence of children
- Pediatricians and other physicians should ask about tobacco use and secondhand smoke exposure, INCLUDING e-cigarette and other electronic nicotine delivery device use and exposure to secondhand “vapor”
- Promote the Nevada Tobacco Quitline for tobacco cessation, including combustible and e-cigarette use. This quitline provides FDA approved tobacco cessation aids free of charge to Nevada adults as well as counseling, web and text support for Nevada residents age 13 and older

## References

<sup>1</sup> California Department of Public Health. *HEALTH ADVISORY – January 28, 2015 Electronic Cigarettes: A Summary of the Public Health Risks and Recommendations for Health Care Professionals*. [Online].

<sup>2</sup> California Office of Environmental Health Hazard Assessment, Safe Drinking Water and Toxic Enforcement Act of 1986. Current Proposition 65 List [Online].

<sup>3</sup> California Department of Public Health. *HEALTH ADVISORY – January 28, 2015 Electronic Cigarettes: A Summary of the Public Health Risks and Recommendations for Health Care Professionals*. [Online].

<sup>4</sup> ASTHO, NACHO, *E-Cigarettes: a Path to Policy Perspectives from Local and State Health Departments, January 21, 2014*. Retrieved from the worldwide web on January 29, 2015 <http://www.astho.org/Prevention/Tobacco/E-Cigarettes/>

<sup>5</sup> Nevada Tobacco Prevention Coalition. *Position Paper on E-Cigarettes*, April 2014. Retrieved from the worldwide web on January 29, 2015: [http://www.tobaccofreenv.org/wp-content/uploads/2014/09/NTPC-E-cig-Position\\_18April-2014.pdf](http://www.tobaccofreenv.org/wp-content/uploads/2014/09/NTPC-E-cig-Position_18April-2014.pdf).

<sup>6</sup> Sussan TE, Gajghate S, Thimmulappa RK, Ma J, Kim J-H, et al. (2015) Exposure to Electronic Cigarettes Impairs Pulmonary Anti-Bacterial and Anti-Viral Defenses in a Mouse Model. PLoS ONE 10(2).

<sup>7</sup> Centers for Disease Control and Prevention, Office on Smoking and Health. *The OSH PSB Weekly Dose for the Week of February 9, 2015.*

<sup>8</sup> Grana, R; Benowitz, N; Glantz, S. "Background Paper on E-cigarettes," Center for Tobacco Control Research and Education, University of California, San Francisco and WHO Collaborating Center on Tobacco Control. December 2013.

<sup>9</sup> Campaign for Tobacco Free Kids. *New National Survey: More U.S. Teens Used E-Cigarettes than Traditional Cigarettes in 2014. December 16, 2014.* Retrieved from the worldwide web on January 29, 2015: [http://www.tobaccofreekids.org/press\\_releases/post/2014\\_12\\_16\\_ecig](http://www.tobaccofreekids.org/press_releases/post/2014_12_16_ecig)

<sup>10</sup> Chatham-Stephens, K., et al., Notes from the field: calls to poison centers for exposures to electronic cigarettes - United States, September 2010-February 2014. MMWR Morbidity and Mortality Weekly Report, 2014. 63(13): p. 292-3.

<sup>11</sup> Nevada Poison Center, February 2015

<sup>12</sup> Adkison, S.E., et al., *Electronic nicotine delivery systems: international tobacco control four-country survey.* Am J Prev Med, 2013. 44(3): p. 207-15.

<sup>13</sup> Barnoya, J. and S.A. Glantz, *Cardiovascular effects of secondhand smoke: nearly as large as smoking.* Circulation, 2005. 111(20): p. 2684-98.

<sup>14</sup> Pope, C.A., 3rd, et al., *Cardiovascular mortality and exposure to airborne fine particulate matter and cigarette smoke: shape of the exposure-response relationship.* Circulation, 2009. 120(11): p. 941-8.