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Pregnancy and E-Cigarettes

The use of electronic nicotine delivery systems (ENDS), such as electronic cigarettes (e-cigarettes, e-hookahs, vape pens/pipes, mods, etc.) has continued to grow quickly since their introduction in 2007.¹ Overall, the drastic increase in utilization of e-cigarettes among young people, specifically women of childbearing age, is cause for concern given the lack of understanding of long term implications on health.

Table 1. Nevada E-Cigarette Use during Previous 30 Days, 2015²

Demographic	Grouping	Used e-cigarettes
Geography	Statewide	5.8%
	Washoe County	5.0%
Age	18-24	12.9%
	25-34	6.6%
	35-44	7.1%
Sex	Female	4.8%

Background

E-cigarettes and other ENDS are battery-powered devices that provide nicotine and other additives to users in aerosol form through a heated nicotine solution (or e-liquid/juice as it is commonly referred to). Users' attitudes toward e-cigarettes have typically been favorable, describing them as more convenient, less expensive, and a viable method for tobacco cessation.^{3,4} Industry norms have been to market e-cigarettes as a "safer" alternative to traditional cigarettes because they do not contain combustible tobacco, and they are often touted as a "safe" method for tobacco cessation.^{1,3,4} Despite the presence of e-cigarettes in the market for a decade, scientific evidence to support these claims of safety and efficacy as a cessation tool has been minimal.

Only recently has the FDA begun regulating e-liquid ingredients and ingredient disclosures. Prior to the FDA's 2016 "Deeming Rule," e-liquid manufacturers were not required to disclose ingredients, and were not subject to regulatory authority in regards to e-liquid contents. E-cigarette aerosol typically contains very high

levels of nicotine and chemicals such as nitrosamines, propylene glycol, and diethylene glycol, in addition to heavy metals including lead, chromium, and nickel.^{3,4} Many of these ingredients are known carcinogens, and can have damaging impacts on the health of adults, adolescents, and developing embryos.⁴

Pregnancy Implications

Although the health impacts of e-cigarette use and vaping remain unclear, the effects of nicotine use in pregnancy are well understood. Maternal exposure to nicotine leads to many health conditions in developing infants. Because nicotine is highly lipophilic, it has the ability to be quickly absorbed into maternal and fetal organ tissues, and is easily passed to infants through breastmilk.⁵ Clinical studies have demonstrated that maternal and fetal nicotine exposure can lead to:^{5,6}

- Reduced fertility and reproductive functioning
- Increased risk of obesity
- Increased risk of developing Type 2 diabetes
- Hormonal and metabolic dysregulation
- Significantly increased blood levels of inflammatory markers
- Impaired placental vasculature and development
- Increased risk of childhood nicotine use/dependence

The CDC recognizes that nicotine exposure can lead to low birthweight, and damage a developing child's brain and lungs.⁷ Long term developmental and health outcomes stemming from ENDS and e-cigarette use may still be unclear, but their use for consumption of nicotine is strongly cautioned against for well-established reasons.³⁻⁷

The use of e-cigarettes has also led to an increase in vaporization of cannabis. A recent study among California high school students reported that rates of vaping cannabis products (hash oil, THC-infused wax, and dried marijuana leaves) was 18% among e-cigarette

users.⁸ E-cigarette use for cannabis consumption during pregnancy is of great public health concern, as it has been linked to:⁹

- Low birth weight
- Anemia
- Placement in neonatal intensive care
- Impaired visual memory
- Reduced impulse control
- Attention disorders

Further research has demonstrated a direct correlation between cannabis dose potency and brain abnormalities, eye deformations, and facial disfigurement in developing fetuses.⁹ As the use of e-cigarettes becomes even more prevalent, the implications that this trend has for cannabis consumption among pregnant women cannot be ignored.

Recommendations

Medical visits provide unique opportunities for healthcare professionals to assess and intervene with individuals who use e-cigarettes and other ENDS. The U.S. Preventive Services Task Force (USPSTF) recommends that clinicians screen, advise, and:¹⁰

- Provide behavioral interventions and FDA-approved pharmacotherapy for cessation to adults
- Provide behavioral interventions without pharmacotherapy for cessation to [pregnant women](#)

The USPSTF further concludes that current evidence is insufficient to assess both the balance of benefits and harms of pharmacotherapy interventions for tobacco cessation in pregnant women, as well as the recommendation of ENDS for tobacco cessation in all adults.¹⁰

Nevada Tobacco Quitline

It is recommended that healthcare providers refer patients that use tobacco products or ENDS to the Nevada Tobacco Quitline, especially patients who do not have insurance or have limited insurance coverage. The Nevada Tobacco Quitline is operated by National Jewish Health. Their services are medically-oriented and build upon their expertise in respiratory health. The Nevada Tobacco Quitline offers professional cessation coaching sessions, Nicotine Replacement Therapy

medications, and customized educational material to support the needs of those seeking to quit tobacco and nicotine use free of charge. To obtain 1-800-QUIT-NOW cards, Quitline Provider Referral Forms and other tobacco information for your office, please visit www.GetHealthyWashoe.com, or contact Washoe County Health District, Chronic Disease Prevention Program at: info@gethealthywashoe.com. For more information on the Nevada Tobacco Quitline, call 1-800-QUIT-NOW or visit www.nevadatobaccoquitline.com

Washoe County's Women, Infants, & Children Program

New and expecting mothers may also benefit from the services offered by the WIC program, including:

- Supplemental nutritious food
- Nutrition education and counseling at WIC clinics
- Screening and referral to other services
- Pregnant women that quit smoking could be eligible for up to a year of free diapers through a collaborative program with Amerigroup

For more information, please call (775) 828-6600

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