



## Electronic Cigarettes and Pregnancy

Use of electronic cigarettes (e-cigarettes) has increased dramatically in the US since their introduction in 2007.<sup>i</sup> These products have been marketed both as an alternative to traditional tobacco products and a smoking cessation tool. However, their safety and efficacy remain poorly understood.

In 2016 the federal Food and Drug Administration deemed e-cigarettes to be tobacco products, subject to the Food, Drug, and Cosmetic Act as Amended by the Family Smoking Prevention and Tobacco Control Act. Manufacturers are now required to comply with a range of current regulations for tobacco products. In addition, manufacturers and vendors are prohibited from selling these products to underage youth.<sup>ii</sup>

### Background

- E-cigarettes consist of an 'e-liquid' cartridge, atomizer, battery, and mouthpiece. The e-liquid contains variable amounts of nicotine, flavorings, and other chemicals which help to aerosolize the solution upon inhalation.
- Studies have indicated e-cigarette vapor may contain variable levels of carcinogenic and toxic compounds also found in traditional tobacco cigarettes, including tobacco-specific nitrosamines and diethylene glycol, a poisonous solvent.<sup>iii</sup> Aerosolized e-liquids have also been shown to contain heavy metals such as lead, chromium, and nickel.<sup>iv</sup> The consequences to human health from repeated exposure to these substances at such variable levels is unknown.
- One key study has shown e-liquid flavorings have a more toxic effect on human embryonic stem cells than adult cells.<sup>v</sup> This suggests the developing fetus may be uniquely susceptible to e-liquid toxicity.
- In animal studies, prenatal nicotine exposure increases the risk of developing many chronic diseases, including asthma, diabetes, obesity, cardiovascular disease, and hypertension.<sup>vi</sup>
- Use of other nicotine-containing products, such as smokeless tobacco, during pregnancy is associated with lower birth weight, increased stillbirth rates, and preterm birth.<sup>vii</sup>

### Policy Issues

- The March of Dimes supports the application of tobacco laws to e-cigarettes, including restrictions on sales to minors, public space smoking bans, and taxation.
- Quality control of e-cigarettes is a significant problem. FDA investigations showed that nicotine content varies even in liquid cartridges with the same brand and label, as well as among brands. Low amounts of nicotine were also found in an e-liquid cartridge labeled as nicotine-free.<sup>viii</sup>

### Cessation and Harm Reduction

- While some women may use e-cigarettes in pregnancy because they believe these are safer for their babies than traditional tobacco products, there is no evidence to support this belief to date.
- FDA evaluates both the safety and efficacy of products formally claiming to assist in smoking cessation. However, the FDA has not evaluated these claims for e-cigarettes.

### Key Points

- E-cigarette use is increasing in women of childbearing age, and particularly among teen girls.<sup>ix</sup>
- No amount of nicotine has been proven safe in pregnancy.
- No studies have been performed on the safety of e-cigarettes in pregnant women or on whether they help pregnant women stop smoking.
- More research is needed to better understand the effects of e-cigarettes on women and their children during pregnancy.

### Contact information:

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## Sources

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