

Electronic Cigarettes

“How does this product fit with the mission of medicine? It doesn’t. I see no benefit to it, and I see the possibility of substantial harm.”

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What is an E-Cigarette?

Electronic cigarettes typically use a rechargeable battery-operated heating element to vaporize the nicotine in a replaceable cartridge. Nicotine, the addictive element of tobacco, is usually dissolved in propylene glycol, a clear and colorless liquid that is commonly found in inhalers, cough medicines and other products.

Harmless Water Vapor? Think Again.

Studies of e-cigarette aerosol, inaccurately called vapor by the industry, have found the following chemicals

- Carcinogens: tobacco specific nitrosamines, formaldehyde, acetaldehyde, lead, nickel and chromium (1, 2, 3)
- Heavy metals (4)
- Other hazardous substances: acrolein, tin, toluene and aluminum (2, 3, 4)

Though the quantities of these harmful compounds is often less in e-cigarette aerosol than in traditional cigarette smoke, (2,3) sodium, iron, aluminum and nickel have been found in higher concentrations in e-cigarette aerosol than in cigarette smoke (2, 4).

Nicotine

E-cigarettes contain nicotine, a highly addictive and potentially poisonous substance. Nicotine does the following:

- Liquid solutions often have addictive levels of nicotine, sometimes 20 mg or higher. (5) This is similar to nicotine contents typically found in a pack of cigarettes, although nicotine absorption levels differ. (6)
- Nicotine levels are frequently labelled unreliably. (2, 7)
- Ingestion or skin contact with nicotine solution from a cartridge or refill can lead to nicotine poisoning, which can be deadly. Since 2011, at least 9 Montanans have been treated for nicotine poisoning from e-cigarette liquid, including 4 children under the age of 6 years. (8)



Trying to Quit? Use the Montana Tobacco Quit Line!

- The Montana Tobacco Quit Line is a free service available to all Montanans ready to quit tobacco. Counseling and FDA-approved nicotine replacement therapies, when used in combination, have been shown to be a safe and effective way to quit. Call 1-800-QUIT-NOW or visit www.QuitNowMontana.com to enroll today.

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Propylene Glycol

Propylene glycol, the main ingredient in e-cigarette aerosol, causes eye, throat and airway irritation after short term exposure (9) and can exacerbate asthma or stimulate onset of asthma in children after long term exposure (10).

Increasing Popularity

E-cigarettes entered the American market in 2007. Overall awareness of e-cigarettes is growing among US adults. Awareness of e-cigarettes **quadrupled** between 2009 and 2012; from 16% to 75%. There are over **400 brands** of electronic smoking devices on the market (11). Two thirds of Montana tobacco retailers sell e-cigarettes (12).

Although youth smoking rates have decreased in the U.S., e-cigarette use has risen and doubled among middle and high school students between 2011 and 2012 (13). Our society needs to be concerned about the effects of e-cigarettes on the brain, especially in young people, and the potential for creating a new generation of persons addicted to nicotine (14, 15).

In 2009, less than 1% of American adults had ever tried e-cigarettes (16). In 2013, 10% of Montana adults had tried smoking e-cigarettes. However, 23% of young adults, aged 18-34, had tried smoking e-cigarettes (17).

Lack of Regulation

There are currently no Food and Drug Administration (FDA) restrictions on ingredients which may be added to e-cigarette liquid or requirements on quality of manufacturing, or factual labelling of ingredients in e-cigarettes. (18) In Montana, a person of any age can legally purchase an e-cigarette.

At this time, evidence is not sufficient to know the range or severity of adverse health effects associated with use of e-cigarettes or secondhand exposure to aerosol from these products.



Sources

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