

THE KNOWN SYSTEMIC HARM OF CONVENTIONAL TOBACCO SMOKING

It is well known that smoking cigarettes is not a healthful activity. In fact, the first sentence of the Centers for Disease Control 'Overview on the Health Effects of Cigarette Smoking' states that 'smoking harms nearly every organ in the body.' Some of the most important effects follow:

Besides the obvious high risk for oral and lung cancer, as well as respiratory diseases, smoking is also associated with increased risk for cardiovascular diseases such as coronary heart disease and stroke by up to four times. Coronary heart disease is the leading cause of death in the United States and has gained particular attention in dentistry because of its relationship to periodontitis. Both cardiovascular disease and periodontitis are inflammatory diseases which exacerbate each other.

For postmenopausal women, smoking is associated with lower bone density and increased risk for hip fracture.

Smoking increases the risk for infertility, and causes damage to infants in terms of pre-term low birth weight, still birth, pre-term delivery and sudden infant death syndrome.

Smoking is a risk factor for 6 of the 8 leading causes of death world-wide. It causes 1 in 5 deaths in the U.S. per year, greater than all deaths caused by HIV, illegal drug use, alcohol use, motor vehicle injuries, suicides and murders combined. It reduces adult life expectancy by about 14 years.

Copyright 2015 Dr. Pamela Nicoara

WHAT ARE ECIGARETTES

We've seen them popping up everywhere like the drive-through coffee kiosks: shops in town or booths in the mall called 'Vape and Smoke' or 'eVape'. Electronic cigarette use is on the rise since their introduction to the market in 2006. They are gaining popularity with young people in particular primarily because they are easily accessible due to lack of FDA regulation, and because of their attractive smell and taste. There is concern that this may attract young non-smokers rather than encourage current tobacco cigarette smokers to quit.

Electronic cigarettes are essentially electronic inhalers that work by way of vaporization – activation of a battery heats a cartridge liquid (usually containing humectants, nicotine, and flavoring) to a maximum temperature of 55C (131F) to release aerosolized nicotine and smokeless vapor. Humectants are often propylene glycol or vegetable glycerin. The aerosolized nicotine is readily delivered into the respiratory tract.

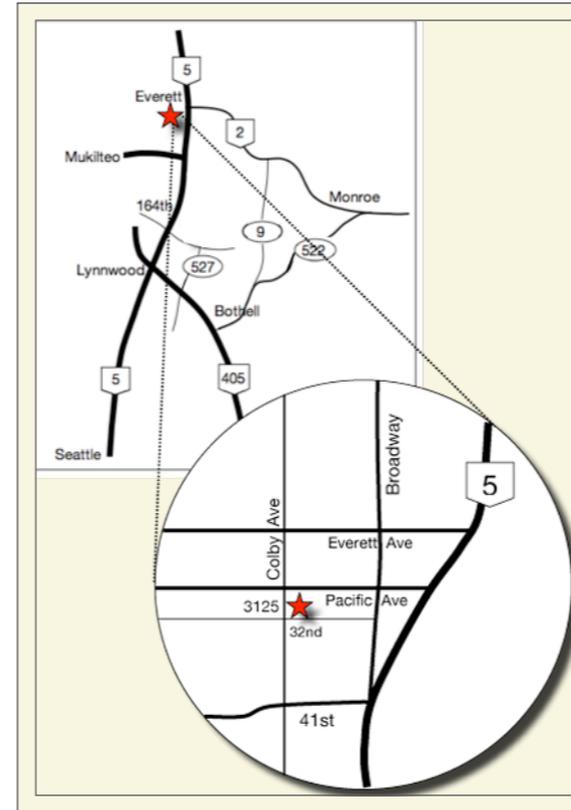


Because of the lack of regulation, eCigs are highly variable with regard to quality control and therefore lack uniform manufacturing standards. But regardless of the milligrams of nicotine per cartridge, electronic cigarettes can reach peak serum cotinine/nicotine levels comparable to that of tobacco cigarettes.

This issue of **ProbeTips** will present a review of the most current literature on electronic cigarettes and their relevance to our profession.

Pamela A Nicoara DDS MSD PLLC

PERIODONTOLOGY IMPLANTOLOGY ORAL MEDICINE



3125 Colby Avenue, Suite H
Everett WA 98201

T: 425-374-5380 F: 425-374-5382

www.NICOARaperio.com
doctor@NICOARaperio.com

PROBE TIPS

A QUARTERLY PERIODONTAL
NEWSLETTER

BY PAMELA NICOARA DDS MSD

Electronic Cigarettes



VOLUME 7, NO. 4

FEBRUARY 2015

Electronic Cigarettes

ECIGARETTES VS TOBACCO SMOKING

How different is an electronic cigarette (EC) compared to a conventional tobacco cigarette (TC)? A 2014 review of the literature indicates that:

1. eCig vapors contain **far less carcinogenic particles** over traditional tobacco smoke which should reduce the risk for oral and lung cancer in particular. This is because ECs do not require the combustion of chemicals to attain a TC-comparable dose of nicotine. The single most harmful aspect of TC use is the combustion of chemicals. Upon burning, TCs release thousands of carcinogens in the form of smoke into the air, where it is exposed to smokers and nonsmokers. ECs have the potential to diminish secondhand smoke exposure to nonsmokers and children of smokers while satisfying nicotine cravings.

2. Unlike tobacco cigarettes, ECs do not cause the increase in total white blood cell count which means ECs **do not increase the risk of atherosclerosis and systemic inflammation**. From a periodontal perspective, reducing systemic inflammation also reduces the risk for periodontitis. It is well known that inflammation in a particular part of the body releases certain chemicals, markers of inflammation, into the blood stream. These chemicals can travel to other parts of the body to exacerbate and increase inflammation in areas with either some inflammation present from disease, or areas genetically susceptible to disease. Periodontitis in the mouth can exacerbate inflammatory diseases of the heart, arthritis in the fingers, or diabetic foot infections, and vice versa.

3. It has also been found that using ECs **improves indoor air quality** in homes over TCs, which reduces second hand smoke exposure. Second hand smoke from TCs is responsible for respiratory illness and asthma, middle ear disease and sudden infant death syndrome, among other things. For children especially, second hand smoke leading to asthma or airway restriction is believed to be one of the causes responsible for sleep bruxism.

4. eCigarettes are **cheaper** than traditional cigarettes costing about 10 cents/mg of nicotine over 15.7 cents/mg of nicotine for traditional cigarettes.

PROBLEMS WITH ECIGARETTES

Among the negatives, eCigarettes use propylene glycol in the nicotine cartridges, the vapor which can induce respiratory irritation or asthma. Many companies are now switching to distilled water and glycerine for vapor production, making this a short-lived problem.

There is also data indicating the challenge of effective eCigarette vaping, meaning that many users have difficulty extracting the nicotine from the eCig device. This is because there is a different puffing technique for eCigs vs tobacco cigarettes meaning that eCig use requires practice. Smoking a cigarette is not generally easy in the beginning, either, which hasn't stopped most people from picking up cigarette smoking for other more powerful reasons (peer pressure, self-esteem, etc0.

Most importantly is the concern over youth use of eCigarettes. Virtually all tobacco cigarette use in the U.S. begins during adolescence or young adulthood with experimentation frequently leading to dependence about 66% of the time. Tobacco use in youth is about 14% for high school age students. The actual prevalence of eCigarette use is difficult to

know, but is lesser and is believed to be around 3% in high school students. While the long term health effects of eCigarette use are currently unclear,

there remains a large concern for adolescents and young adults of reproductive age using these products since nicotine may have potential negative impacts on the developing brain. The claims made by eCig manufacturers could be the tipping factor for those sitting on the fence to start nicotine use and could cause a gateway effect.



ECIGARETTES AND THE PERIODONTIUM

Although it is well known that tobacco cigarette smoking increases the risk of developing periodontitis by up to 6 times in a dose dependent manner: the more you smoke the greater your risk, the same is not necessarily true of eCigarette smoking. In fact there is currently no research on the effect of the use of eCigarettes on the periodontium via a PubMed search. It is known, however, that nicotine in and of itself is harmful to the periodontium and increases inflammatory activity. It will be interesting in time to see what negative effects nicotine alone via eCigarette use may have on the alveolar bone and gingiva.

SMOKING CESSATION, AND ECIGARETTES

Traditionally, quitting tobacco cigarette smoking has the highest success rates (up to 24%) when combining various methods at once. These methods include physical cessation, behavior modification

(changing habits) and pharmacological therapy (nicotine replacement, nicotine blockers or anti-depressants). It has also been known that the traditional methods of smoking cessation are generally not effective if the smoker is not willing to quit. eCigs may offer an alternative for those not willing to quit, but who recognize the health hazards of tobacco smoking.



This is because EC use helps quitters avoid relapse. One of the limitations of current treatments is that none adequately addresses the sensory and behavioral aspects of smoking that smokers miss when they stop smoking (e.g., holding a cigarette in their hands, taking a puff, etc.). eCigs may offer a way to overcome this limitation. A Cochrane Review in 2014 indicates that using ECs increases the rate of cessation for longer periods of time compared to other methods of smoking cessation, and helped reduce cigarette use even if complete cessation could not be achieved. This in light of the fact that other combinations of therapy (namely behavioral modification) were not used and would likely increase the rate of cessation.

REFERENCES

- Cochrane Review*. McRobbie, et al. 2014.
- Laryngoscope*. Oh et al. 2014.
- Current Drug Abuse Reviews*. Lauterstein et al. 2014.
- www.cdc.gov Tobacco Fact Sheet
- www.NewRepublic.com E-cigarettes vs Tobacco Cigarettes. 2014

complete references available on request