

The "Healthier" Version Of Smoking Is More Harmful To Youthful Users Than It Seems

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FULL TEXT

MCLEAN, Va., Nov. 14, 2017 /PRNewswire-USNewswire/ – Recently many college campuses around the country have banned the use of vaping nicotine products (VPNs) and electronic (e)-cigarettes on school grounds. These new smoking trends or alternatives to traditional cigarette and tobacco products are causing many regulatory controversies among this young age group. There is a general perception among the public that e-cigarettes or vaping products are safer than conventional cigarettes. While smoking has fallen significantly, public health questions arise about vaping, especially about youth usage and other vulnerable populations. New research presented at the 2017 Society for Risk Analysis (SRA) Annual Conference suggests a link between VPN use, now a \$3.5 billion industry, and neurotoxicity, immune cell suppression, and cardiovascular disease.

Vaping is the act of inhaling vapor produced by a vaporizer or electronic cigarette. The vapor is produced from a material such as an e-liquid, concentrate, or dry herb. Judith Zelikoff and her team of researchers at the New York University School of Medicine are concerned that pregnant women perceive e-cigarettes as a safer way to maintain their ability to smoke during pregnancy. "Propylene glycol and glycerol, two of the main ingredients in e-cigarette liquids, are generally regarded as safe when ingested, but information concerning effects of these agents via inhalation is severely lacking," she added. It appears some health professionals are encouraging their use by pregnant women, but whether it is truly safe is still in question.

Many emerging tobacco-derived products, including (e)-cigarettes, smokeless tobaccos and hookah often contain flavorants that are generally considered safe to ingest. However, most of these flavors have never been tested to see how toxic they are when heated or inhaled, leaving uncertainty about how they really are. In *Getting a "Flavor" for Cardiovascular Effects of New and Emerging Tobacco Products*, Daniel J. Conklin, of the University of Louisville, explores the role of flavorants, their effect on attracting young people and their possible hazardous effects. One of the key findings: When heated, flavorants can decompose into harmful or potentially harmful constituents (HPHCs).

"We developed a screen to identify flavors with high cardiovascular toxicity in vitro," Conklin said. "We also tested whether flavorant toxicity was altered by low (700 °C) temperature heating, which simulated temperatures encountered in tobacco products." Flavorant toxicity profiles in in lab tests and in cells may inform future human studies to better understand cardiovascular disease risk.

A similar study conducted by Ilona Jaspers of the University of North Carolina at Chapel Hill, *Human Studies to Determine the Effects of Flavored E-cigarettes on Respiratory Immune Responses*, extends these findings by comparing samples of the nasal mucus from non-smokers, cigarette smokers, and e-cigarette users to determine how vaping affects respiratory host defense responses.

"Results showed that suppression of immune genes was larger in magnitude and broader in number than those seen in cigarette smokers," Jaspers said. Various tests were conducted, including how vaping affects the body's defense response to the live attenuated influenza virus (LAIV) vaccine and how flavored e-cigarettes affect immune cells.

The data from Health Effects Associated with E-cigarettes in Vulnerable Populations, presented by Zelikoff, Dana Lauterstein and Terry Gordon, demonstrate that e-cigarette use during pregnancy poses a potential threat to the baby's developing brain, and these effects may be due to ingredients other than nicotine, a known neurotoxicant. The researchers say studies are needed to generate scientific knowledge that can be translated to policy and serve as a guide for regulatory decisions and actions. "The safe use of VPN products during pregnancy remains uncertain as data are lacking regarding the safety of these constituents for pregnant women and developing fetus as well as potential for harm to children from exposure to secondhand e-cigarette aerosols," states Judith Zelikoff.

Finally, more than 6,500 components have been identified in the smoke from burning cigarettes, many of which have established toxic properties and may be important causes of tobacco-related disease. In Quantitative Risk Assessment of Tobacco-Related Toxicants: Comparisons Between Combusted and Heated Tobacco Products, Clive Meredith, of British American Tobacco, studied the toxic substances found in the emissions from heated tobacco products. The results revealed that there are lower levels of toxic substances found in heated tobacco, compared with cigarettes. This adds to increasing evidence showing heated tobacco products offer reduced exposure to these toxic substances.

As public health experts express concern about nicotine addiction and the role vaping plays in quitting cigarette smoking, the debate continues whether or not a ban on sales of VPNs to those younger than 18 is needed, as well as ingredient disclosures by manufacturers and whether product submissions to the U.S. Food and Drug Administration Center for Tobacco Products (FDA/CTP) for approval is warranted.

These studies will be presented during the To Vape or Not to Vape: Risks of E-cigarette Use symposium on Wednesday, Dec. 13 from 1:30-3 p.m. at the 2017 SRA Annual Meeting at the Crystal Gateway Marriott in Arlington, Virginia.

*Ilona Jaspers, Ph.D., from University of North Carolina, Daniel J. Conklin, Ph.D., from University of Louisville and Judith Zelikoff, Ph.D., from New York University will be available for media interviews at the 2017 SRA Annual Meeting. Please contact Melanie Preve at melanie@bigvoicecomm.com for all interview requests.

About SRA

The Society for Risk Analysis is a multidisciplinary, interdisciplinary, scholarly, international society that provides an open forum for all those interested in risk analysis. SRA was established in 1980 and has published Risk Analysis: An International Journal, the leading scholarly journal in the field, continuously since 1981. For more information, visit www.sra.org.

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