Electronic Cigarettes: Health Risks and Workplace Policy

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Electronic cigarettes are advertised as "harmless" replacements for tobacco use. Reports of adverse public health outcomes suggest regulatory restrictions over electronic cigarette manufacturing, marketing, and use are needed along with research to determine their health effects. [*Workplace Health Saf* 2014;62(9):396.]

Tobacco use contributes to a global epidemic of illness and death. To counter the negative effects of and increased legal restrictions on tobacco use, electronic nicotine delivery systems, such as the e-cigarette, emerged as "harmless" replacements. With tobacco industry financing, e-cigarettes' use and profits skyrocketed; estimated global sales for 2014 are $2 billion (Begley, 2014). Battery operated e-cigarettes deliver a nicotine aerosol and resemble regular tobacco smoking products. Refillable cartridges contain liquid solutions of nicotine, flavorings, and other chemicals. Puffing activates the battery-powered heating device, vaporizing the e-cigarette liquid that is inhaled, called vaping. The vaporized aerosol looks similar to tobacco smoke; however, inhaled nicotine quantities vary, often significantly (U.S. Department of Health and Human Services, [DHHS], 2013).

Some physicians consider e-cigarettes a safer alternative to tobacco products and recommend them to patients (Kandra, Ranney, Lee, & Goldstein, 2014). Research shows e-cigarettes may contain toxic chemicals and potentially harmful nanoparticles with formaldehyde, benzene, and other carcinogens in their vapors (DHHS, 2013). Environmental exposure to any of these products creates recognized health risks (American Lung Association, 2014). Reports of hospitalization for pneumonia, congestive heart failure, seizure, and hypotension have occurred after e-cigarette use (DHHS, 2014). Evidence suggests merely seeing e-cigarettes or their vapors increases young tobacco users urge to smoke (King, Smith, McNamara, Matthews, & Fridberg, 2014).

Other public health concerns over e-cigarettes include their unknown long-term effects; unspecified amounts of nicotine and other chemicals inhaled during use; risk of toxic nicotine exposure with cartridge refilling; and lack of federal regulations that control manufacturing and marketing or ensure the purity and safety of flavored aerosol liquids (DHHS, 2013). Therefore, advocacy for stronger manufacturing controls along with reexamination of smoke-free laws and sale restrictions are needed at all levels of government to protect the public (Paradise, 2014).

The media often contribute to public perception, and misinformation presents challenges for occupational and environmental health nurses who often provide accurate worksite health education programs, health coaching, and policy recommendations about e-cigarettes. Scientific evidence on e-cigarettes is needed so nurses can accurately educate their workforce and promote safe use. Therefore, lacking a legitimate need in the workplace and until research suggests differently, smoking e-cigarettes at work should be restricted under the same policy as tobacco. State and local officials need support to institute regulations that prohibit tobacco and e-cigarette use in public places, including restaurants and bars. At the federal level, advocacy for regulations on e-cigarette manufacturing, marketing, liquid purity, and refillable cartridges is necessary. Additionally, workers need education to report adverse effects from e-cigarettes to the U.S. Food and Drug Administration. The e-cigarette may be a better alternative to tobacco, but more research and regulatory oversight are needed.

To report e-cigarette problems: call 1-800-FDA-1088 or visit https://www.safetyreporting.hhs.gov/fpsr/WorkflowLoginIO.aspx?metinstance=912E04F5FB6370280CFDD90B7AEF4AEE900D7271

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