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The Debate About Electronic Cigarettes: Harm Minimization or the Precautionary Principle

Lawrence W. Green,[1] Jonathan E. Fielding,[2] and Ross C. Brownson[3]

[1]Department of Epidemiology and Biostatistics, University of California, San Francisco, California 94127, USA; email: lwgreen@comcast.net

[2]Fielding School of Public Health and Geffen School of Medicine, University of California, Los Angeles, California 90095, USA; email: jfieldin@ucla.edu

[3]Prevention Research Center in St. Louis, Brown School; Department of Surgery and Alvin J. Siteman Cancer Center, Washington University School of Medicine, Washington University in St. Louis, St. Louis, Missouri 63130, USA; email: rbrownson@wustl.edu

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Abstract

Two contrasting reviews (authored by Abrams et al. and Glantz & Bareham) in this volume have reached opposing conclusions on the effects of electronic cigarettes in a debate that is dividing the scientific and professional communities that have devoted careers to controlling the manufacture, advertising, sale, and use of combustible cigarettes. The research on the types, degree, and extent of harm from e-cigarettes is far from complete and, together with trends in teenage smoking and vaping, has raised new questions and prospects about the potential benefits that the new electronic products offer smokers of combustible cigarettes in quitting or at least cutting back on the known risks associated with the traditional forms of smoking. The rapidly morphing forms, constituents, promotions, and uses of the electronic varieties of the new nicotine delivery products (in this case electronic cigarettes) make research on their biological and behavioral effects moving targets. The two sides of this argument have produced a global divide on policy strategies.

COMMENTARY

In this volume, we present two reviews on e-cigarettes, which come to different conclusions. One, by Abrams et al. (1), takes a cautiously positive message from the research and practice experience he points to as evidence, to date, of successful use of e-cigarettes to quit smoking tobacco-burning cigarettes and of reductions in youth smoking of combustible cigarettes since the advent of e-cigarettes. His conclusion leans on a harm minimization perspective. For adult smokers, the Centers for Disease Control and Prevention (CDC), consistent with Abrams et al., continues to promote the standard outlined in the 2014 Surgeon General's report (4), that e-cigarettes have the potential to benefit adult smokers if used as a *complete* substitute for conventional cigarettes and other combustible tobacco products.

The other review, by Glantz & Bareham (2), takes a decidedly more defensive stance. They argue that the tobacco industry has a long history of devising innovations on cigarette smoking that give the appearance of protecting the smoker (such as filters, menthol, "low tar") but actually exacerbate the harms of smoking and recruit new smokers. They further argue that the chemicals in the flavored fluids used with e-cigarettes have only begun to be analyzed for their harmful effects. Glantz & Bareham seek more than harm minimization, if it exists. They advocate a continued push to control, to denormalize, and, if necessary and possible, to shut down the "tobacco" industry. The Glantz position invokes the precautionary principle, that any new product or policy should be resisted in the face of uncertain evidence of harm and which is used to frame policy debates in some parts of the world (e.g., the European Union).

Tobacco companies have begun buying up e-cigarette manufacturers, but Phillip Morris International (PMI) has recently pursued other tactics in the realm of diversified smoking and vaping. The most invasive of these tactics might be PMI's Bluetooth-enabled heat-not-burn device, which could send nicotine consumption data directly to the company, apparently seeking to monitor, study, and perhaps assure addiction while promising satisfaction at a "minimal" level of nicotine. Their new, rapidly expanding international tobacco product is IQOS ("I quit ordinary smoking"), a sleek electronic device rolled out in trendy flagship stores in Europe and Asia that look much like Apple or Microsoft stores. Some of these stores in Japan, for example, are combined with coffee shops and cleaning services for nicotine-delivery devices (M. Kim, personal communication).

Is this new array of products, from e-cigarettes to IQOSs, a potential endgame for the tobacco industry? Is this strategy a "pharmaceuticalization" of the tobacco industry (3)? By delivering nicotine with new controls for the user, in devices that have all the appearances and trappings of high technology yet with familiar tastes and aromas, e-cigarettes have opened new avenues for the industry to pursue its sales of nicotine with promises of low tar but with yet unknown primary and secondhand health effects. Studies are under way or being sought on the impact of nicotine on the developing brain of adolescents and young adults (the apparent primary target of the industry) and the chronic effects in adults. Research is needed, for example, on neurological and potentially other effects of chronic coactivation of multiple brain receptors, the effects of dual use as a tobacco cessation aid, and whether the apparent reduction in uptake of combustible tobacco smoking in teenagers is a sign of successful substitution and, if so, what are the health trade-offs.

On balance, and consistent with the 2014 and 2016 Surgeon General's reports (4, 5), the CDC acknowledges that more robust research is needed to understand the longer-term health effects of e-cigarettes, including their potential efficacy for cessation. The most recent CDC framing on this issue, and others related to e-cigarettes, can be found on the following website: **https://www.cdc.gov/tobacco/basic_information/e-cigarettes/index.htm**.

DISCLOSURE STATEMENT

The authors are not aware of any affiliations, memberships, funding, or financial holdings that might be perceived as affecting the objectivity of this review, with the possible exception of Green's past affiliation with the CDC Office on Smoking and Health or his past unpaid joint faculty appointment with the UCSF Center for Tobacco Control Research and Education.

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