

The Clinical Promise of E-Cigarettes for Smoking Cessation and Harm Reduction

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*State of the Science: Research in
Tobacco Cessation, Products & Policy
event on March 19, 2019
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Disclosures


- Research funding: Philip Morris International, Altria, JUUL Labs, Intratab Labs
- Consulting: Philip Morris International; Intratab Labs
- Patent purchase agreement in 2011 with Philip Morris International for nicotine inhalation system

All projects limited to the development and evaluation of *reduced risk tobacco/nicotine products*

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Letter to the Editor |  [Free Access](#) |

Why we work with the tobacco industry

John R. Hughes , Karl O. Fagerstrom, Jack E. Henningfield, Brad Rodu, Jed E. Rose, Saul Shiffman

First published: 15 October 2018

<https://doi.org/10.1111/add.14461>

Cited by: 3

E-cigarettes and related technologies have enormous promise for smoking cessation and are likely to save millions of lives otherwise lost due to cigarette smoking.

Facts supporting efficacy of e-cigarettes in smoking cessation

- Every form of nicotine replacement that has been studied--patch, gum, lozenge, nasal spray, vapor inhaler--has shown efficacy.
- Cochrane Reports have concluded, based on RCTs with first generation e-cigarette devices, that they are as efficacious as NRT for cessation and more efficacious in reducing smoking by >50%.
<https://www.cochranelibrary.com/cdsr/doi/10.1002/14651858.CD010216.pub3/media/CDSR/CD010216/CD010216.pdf>
- Recent study found that e-cigarettes were approximately TWICE as efficacious as state-of-the-art NRT. <https://www.nejm.org/doi/10.1056/NEJMoa1808779>

ORIGINAL ARTICLE

A Randomized Trial of E-Cigarettes versus Nicotine-Replacement Therapy

Peter Hajek, Ph.D., Anna Phillips-Waller, B.Sc., Dunja Przulj, Ph.D., Francesca Pesola, Ph.D., Katie Myers Smith, D.Psych., Natalie Bisal, M.Sc., Jinshuo Li, M.Phil., Steve Parrott, M.Sc., Peter Sasieni, Ph.D., Lynne Dawkins, Ph.D., Louise Ross, Maciej Goniewicz, Ph.D., Pharm.D., et al.

February 14, 2019

N Engl J Med 2019; 380:629-637

DOI: 10.1056/NEJMoa1808779

The 1-year abstinence rate was 18.0% in the e-cigarette group, as compared with 9.9% in the nicotine-replacement group (relative risk, 1.83; 95% confidence interval [CI], 1.30 to 2.58; $P < 0.001$).

E-cigarettes and HARM REDUCTION

Surgeon General's Report, 2010

Combustion products in smoke, rather than nicotine, are responsible for most smoking related disease.

“Inhaling the complex chemical mixture of **combustion compounds** in tobacco smoke causes adverse health outcomes, particularly cancer and cardiovascular and pulmonary diseases, through mechanisms that include DNA damage, inflammation, and oxidative stress. “

JAMA Network Open. 2018;1(8):e185937. doi:10.1001/jamanetworkopen.2018.5937

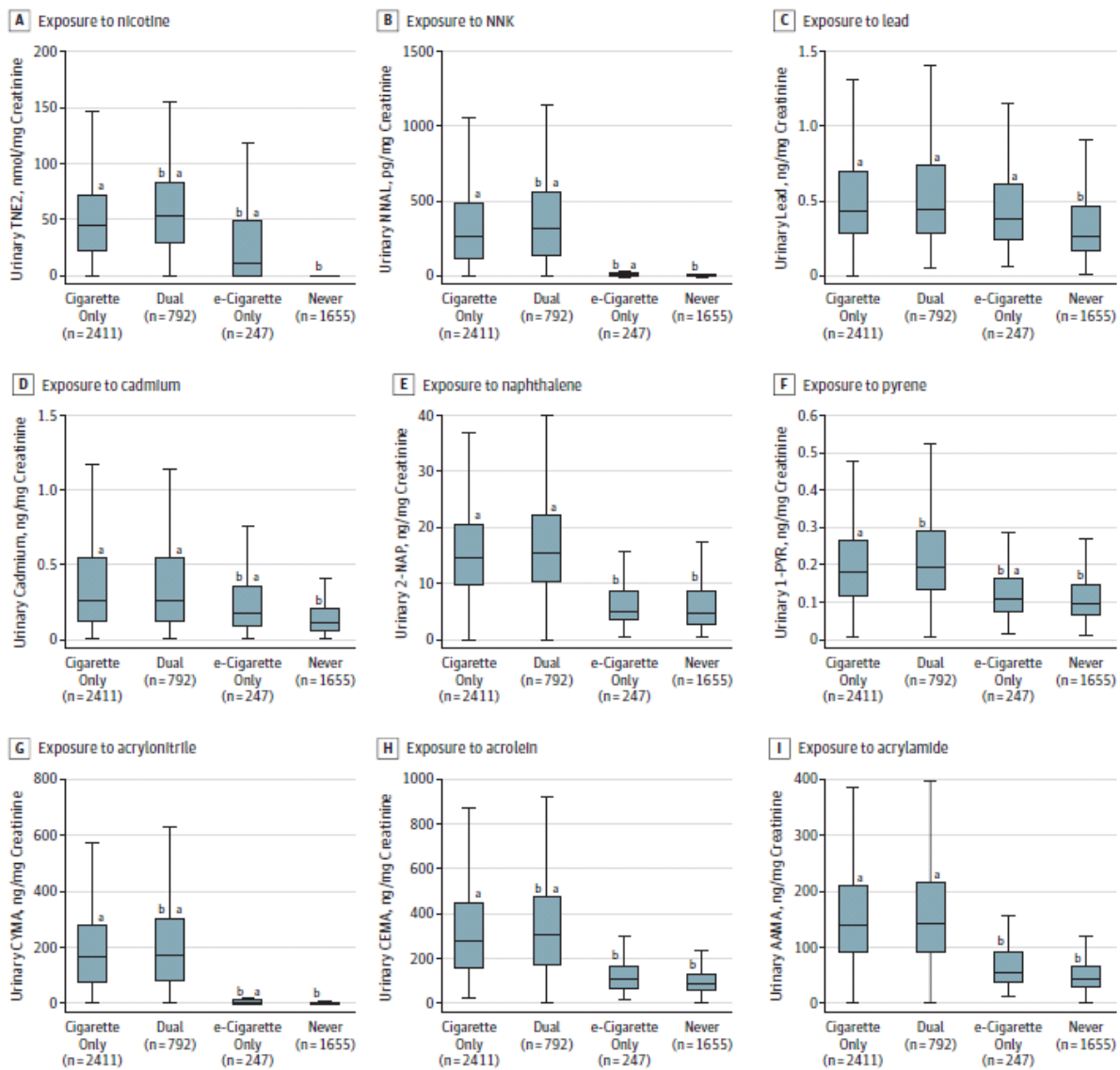


Original Investigation | Public Health

Comparison of Nicotine and Toxicant Exposure in Users of Electronic Cigarettes and Combustible Cigarettes

Maciej L. Goniewicz, PharmD, PhD; Danielle M. Smith, MPH; Kathryn C. Edwards, PhD; Benjamin C. Blount, PhD; Kathleen L. Caldwell, PhD; Jun Feng, PhD; Lanqing Wang, PhD; Carol Christensen, PhD; Bridget Ambrose, PhD; Nicolette Borek, PhD; Dana van Bommel, PhD; Karen Konkel, PhD; Gladys Erives, PhD; Cassandra A. Stanton, PhD; Elizabeth Lambert, MSc; Heather L. Kimmel, PhD; Dorothy Hatsukami, PhD; Stephen S. Hecht, PhD; Raymond S. Niaura, PhD; Mark Travers, PhD; Charles Lawrence, PhD; Andrew J. Hyland, PhD

Figure 1. Biomarkers of Exposure Among Dual Users, Cigarette-Only Smokers, e-Cigarette-Only Users, and Never Users, Population Assessment of Tobacco and Health Study, Wave 1, 2013-2014 (N = 5105)



“Key points”???

Key Points

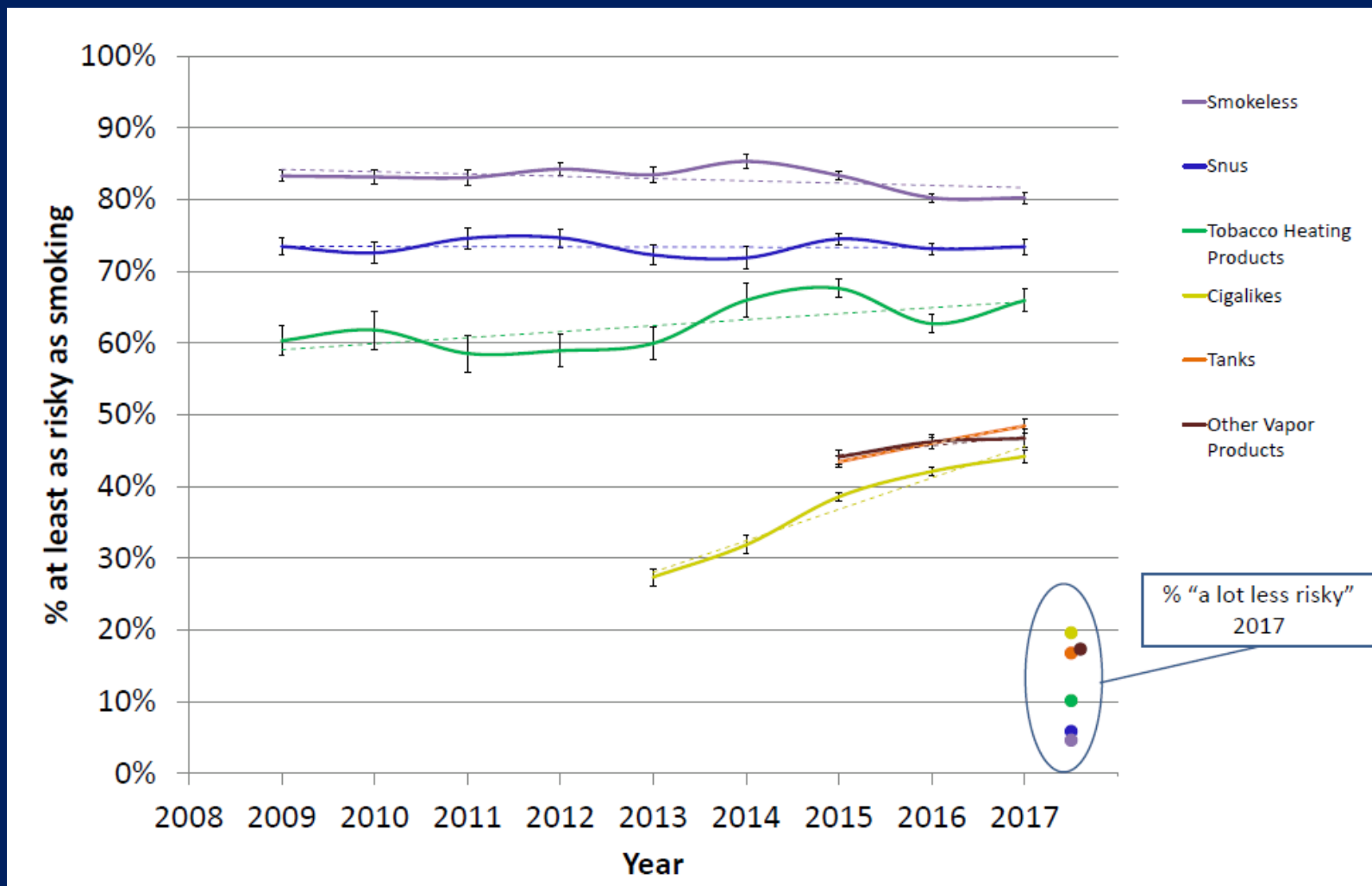
Question Are electronic cigarette (e-cigarette) users exposed to known tobacco-related toxicants and, if so, how does the exposure compare with that of combusted tobacco cigarettes?

Findings In this population-based cohort study of 5105 participants, current exclusive e-cigarette users had greater concentrations of biomarkers of nicotine, tobacco-specific nitrosamines, volatile organic compounds, and metals compared with never tobacco users. However, these concentrations were lower than those observed in current exclusive cigarette smokers and dual users of both products.

Meaning Use of e-cigarettes appears to be associated with exposure to known tobacco-related toxicants, but the exposure is reduced compared with cigarette smoking.

Trends in US smokers' perceptions of the relative risks of non-combustible tobacco products vs. cigarettes

Shiffman, et al., *Poster presented at the 2018 Society for Research on Nicotine and Tobacco Annual Meeting, February 21-24, 2018, Baltimore, MD:*





OPEN ACCESS

Potential deaths averted in USA by replacing cigarettes with e-cigarettes

David T Levy,¹ Ron Borland,² Eric N Lindblom,³ Maciej L Goniewicz,⁴ Rafael Meza,⁵ Theodore R Holford,⁶ Zhe Yuan,⁷ Yuying Luo,⁷ Richard J O'Connor,⁴ Raymond Niaura,⁸ David B Abrams^{1,8}

- Compared with the Status Quo, replacement of cigarette by e-cigarette use over a 10-year period yields **6.6 million fewer premature deaths** with 86.7 million fewer life years lost in the Optimistic Scenario. Under the Pessimistic Scenario, **1.6 million premature deaths are averted** with 20.8 million fewer life years lost.