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From tobacco-endgame strategizing to Red Queen's race: The case of non-combustible tobacco products☆

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The tobacco endgame was in sight. Endgame strategies or "*Initiatives designed to change or eliminate permanently the structural, political and social dynamics that sustain the tobacco epidemic, in order to end it within a specific time…"* abounded (Malone, McDaniel, & Smith, 2014; McDaniel, Smith, & Malone, 2016). As late as 2015 and marking the 10-year anniversary of the WHO Framework Convention on Tobacco Control (FCTC), an endgame strategy was proffered by a group at *The Lancet*, which called for a tobacco free world by 2040 (Beaglehole, Bonita, Yach, Mackay, & Reddy, 2015). Amid the lowest rates of cigarette smoking in history for high-income countries, and reductions in smoking prevalence in a large majority of countries monitored by the WHO (Bilano, Gilmour, Moffiet, et al., 2015), excitement over the potential to end the tobacco epidemic was palpable. Then, the situation changed. In 2004 the electronic cigarette (also called e-cigs, vapes, vape pens, pods, and so on) was introduced (Purkayastha, 2013), which included a cornucopia of flavors and ever-changing device styles, including pod-based products introduced in 2015 made popular by the brand Juul (McKelvey, Baiocchi, & Halpern-Felsher, 2018). While developing vapes and a wide array of other new and attractive tobacco products (in this special issue, Ahmad and colleagues (Ahmad & Dutra, 2018) report on industry attempts to create safer-seeming products), the tobacco industry also managed to rebrand and thereby increase the selection of traditional products (e.g., smokeless tobacco) and sales in previously less-tapped markets (e.g., snus, introduced into the US market in 2006) (Hendlin, Veffer, Lewis, & Ling, 2017; Wray, Jupka, Berman, Zellin, & Vijaykumar, 2012). While these novel and rebranded tobacco products are not combustible they are addictive (as they contain nicotine), and use has been associated with smoking uptake among those who are nicotine-naïve, reuptake among former-smokers, concurrent use of multiple tobacco products, and decreased success with quit attempts (Kalkhoran & Glantz, 2016; Loukas, Marti, Cooper, Pasch, & Perry, 2018; NIDA, 2017; Pénzes et al., 2018; Primack, Soneji, Stoolmiller, Fine, & Sargent, 2015).

A lack of regulation and cohesive public health messaging surrounding these newer tobacco products, combined with rampant online sales and marketing, produced a perfect storm that has enabled widespread and rapid adoption, and continued use of novel non-combustible tobacco products. In contrast to the public health gains that were anticipated, as a result of

☆"Now, here, you see, it takes all the running you can do, to keep in the same place." The words of the Red Queen to Alice in Lewis Carroll's through the looking Glass.

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decreasing traditional cigarette smoking rates, we have witnessed a steady increase in tobacco and nicotine use worldwide. When non-combustible tobacco products are used exclusively, fewer adverse health effects are likely compared to cigarette smoking, however, in a study examining health effects of e-cigarettes among adult smokers participating in a smoking-reduction trial (Veldheer & Yingst, 2018) (in this Special Issue, Veldheer et al.), a pattern of exclusive use did not emerge. Instead, this study shows concurrent use of cigarettes and non-combustible products, thereby offsetting potential benefits and increasing overall tobacco and nicotine use among these poly-tobacco users.

Across research, clinical, and professional fields, diverse hypotheses have been offered to explain increased use of non-combustible tobacco products. Prior studies have shown that an absence of clear public health messaging on the harms of e-cigarettes leads to the misperception that these products are not harmful (Berg, Stratton, Schauer, et al., 2015; Pepper & Brewer, 2014), and that perceptions of no or reduced harm are strongly predictive of uptake, particularly among youth (Ambrose, Rostron, Johnson, et al., n.d.; Huang et al., 2016; US Department, 2012). Marketing that displays pretty images and cool gadgets is likely to have contributed to this increase, as has the availability of an array of flavored products (Ambrose, Day, Rostron, et al., 2015; Barrington-Trimis, Gibson, Halpern-Felsher, et al., 2017; Brown, Luo, Isabelle, & Pankow, 2014; Cantrell, Emelle, Ganz, Hair, & Vallone, 2016; Giovenco, Lewis, & Delnevo, 2014; Harrell, Loukas, Jackson, Marti, & Perry, 2017; McKelvey, Baiocchi, Ramamurthi, & McLaughlin, 2018; Padon, Maloney, & Cappella, 2017; Shiffman, Sembower, Pillitteri, Gerlach, & Gitchell, 2015; Trumbo & Harper, 2015). Researchers, clinicians, and public health and tobacco control professionals alike must work together to further understand the different forms of tobacco products, consider multifaceted solutions, and develop effective, sustainable public-health messaging. To do so, studies examining many aspects of non-combustible tobacco products are needed. Aptly, the invitation to submit papers for this Special Issue of *Addictive Behaviors* that focused on non-combustible tobacco drew responses from a broad range of researchers, institutions, and practice areas encompassing a diversity of topics and population subgroups.

In this issue, several articles provide updated information on patterns of use of non-combustible products among different populations, and characteristics of e-cigarette users. Kilibarda, Krstev, Milovanovic, & Foley (2018) describe prevalence, reasons for trying, and perceptions of e-cigarettes in Serbia; Herbeć, Chang, Tindle, & Rigotti (2018) on use by hospitalized individuals; and Felicione, Enlow, Elswick, Long, & Sullivan (2018) on use among opioid-dependent smokers. Co-use of e-cigarettes with alcohol among college students, stratified by mental health status, is explored by Hefner, Sollazzo, Mullaney, Coker, & Sofuoglu (2018). Cooper, Case, Hébert, et al. (2018) use ecological momentary assessment to characterize e-cigarette use among young adults in southern California.

Other investigators in this Special Issue examine reasons for use of non-combustible tobacco products as well as perceptions of these novel products. Campbell, Le, & Gubner (2018) examine reasons for use of tobacco products among clients in treatment for addictions. Using data from the Population Assessment of Tobacco and Health (PATH) study, Fong, Elton-Marshall, Driezen, et al. (2018) describe US adult perceptions of harm and Sawdey, Day, Coleman, et al. (2018) examine risk factors and susceptibility to use of different

tobacco products among youth. How smokers perceive harms of using snus compared to smoking is the focus of a study by Wackowski, Ray, & Stapleton (2018), while Ma, Hart, Walker, et al. (2018) explore how smoking status affects perceived harms of e-cigarette use.

Scientific discourse regarding the impact of novel non-combustible tobacco products on public health is complicated by conflicting findings. Arguments include whether e-cigarettes are an effective cessation tool (discussed in this special issue by Erku, Gartner, Do, Morphett, & Steadman (2018)); whether and which flavors should be banned from tobacco products (Soule & Sakuma, 2018) provide content analysis of online flavored e-cigarette marketing promotions; McKelvey, Baiocchi, Ramamurthi, & McLaughlin, 2018) report that youth feel ads for flavored e-cigarettes target them; Stroud, Papandonatos, Borba, Kehoe, & Scott-Sheldon (2018) report on flavor choices among pregnant e-cigarette users; and Rangel-Gomez et al. (2018) examine the separate effects of wintergreen flavors and nicotine among smokeless tobacco users); which e-liquid or device constituents require regulation (explored in this issue by Mead, Duffy, Oncken, & Litt (2018) including discussion of e-liquid ingredients and device power); addiction potential of e-cigarettes (Hughes & Callas (2018) report on withdrawal symptoms from using vapes); youth appeal (illustrating technology's influence on youth, Barrientos-Gutierrez et al. (2018) propose "technophilia" as a risk factor for use); marketing content and platforms that should be regulated (Laestadius, Wahl, Pokhrel, & Cho, 2018) present analysis of e-liquid ad contents, and Kreitzberg, Murthy, & Loukas (2018) discuss heat-not-burn device promotions on Instagram); and how to prevent initiation among nicotine-naïve populations and re-initiation among former smokers (supporting a positive role for media in the lives of adolescents, Noar, Rohde, & Horvitz (2018) describe their receptivity to messaging about e-cigarette harms received via text message; Pentz & Hieftje (2018) describe a videogame intervention to prevent tobacco use; and Chu & Allem (2018) describe strategies to decipher target audiences for e-cigarette education campaigns on Twitter).

The impact of tobacco-product regulation further varies by and is largely dependent on the target population and outcomes assessed. In this special issue, Hong, McConnell, Liu, & Urman (2018) report on how local regulations impact young adults' reasons for use, while Popova's team (Yang & Spears, 2018) looks at psychological distress and other responses to messages of comparative risk for e-cigarettes and cigarettes. Pepper & Squiers (2018) report on how risk perceptions are affected by messages of scientific uncertainty regarding harms of vaping, and Lee, Sanders-Jackson, Fallin-Bennett, & Tan (2018) examine how the impact of terms used on tobacco package labels differ between gay, lesbian, bisexual, and heterosexual smokers.

As the tobacco market continues to expand (Stroup, 2018) provide an introduction to the electronic waterpipe), so must research methods evolve to ensure measures are reliable and valid, and generate findings that are comparable across studies and generalizable across contexts and population subgroups. In this Special Issue, the development and validation of e-cigarette measures for youth perceptions is presented by Diez, Cristello, Dillon, De La Rosa, & Trucco (2018), and Morean & Krishnan-Sarin (2018) examine the relationship of sensory expectancies to addiction. Carey et al. (2018) propose a model to understand

susceptibility to use of e-cigarette products, and Maloney & Soule (2018) report findings from a longitudinal study of participation in an online e-cigarette forum.

Of additional concern, public health warnings and tobacco-control messages addressing smoking are not likely to be effective for non-combustible products, due in large part to their capacity to escape collective memory by rapidly mutating form (Lopez & Eissenberg, 2015). However, unlike a virus, this is not a biological response, but rather, the result of an unrestrained budget for marketing of e-cigarette products and an unregulated environment in which products can grow. As an example, for decades cigarettes had a distinct, unified form and utilized the same shape, size, and general mechanistic function for delivering nicotine, with the few exceptions being presence or absence of filters, flavors, and small variations in length or diameter. As such, public health messaging was able to target and impact all, or at least most, brands of cigarettes simultaneously. By contrast, vapes take many forms, with myriad variations seen in device (of which preferences of long-term users are discussed by Yingst, Foulds, Veldheer, & Du (2018)) and e-liquid constituents, including nicotine (Perkins & Herb, 2018) report on discrimination of nicotine content, while Soar, Kimber, McRobbie, & Dawkins (2018) discuss variation in nicotine absorption by type of vape device). The continuous ‘arms race’ between the tobacco industry and the adaptive messaging of public health and tobacco control drives the need for rapid product innovation. For example, the first e-cigarettes introduced looked more like cigarettes (commonly called “cig-a-likes”), yielded about 200 puffs, and were disposable. These first-generation devices were inefficient at nicotine delivery, but most resembled cigarettes. Subsequently, tanks and mods were introduced. They were refillable and customizable open systems with varied levels of heat that were more efficient at delivering nicotine. Presently, we have pod-based systems that use USB-shaped prefilled pods, unlike other types of vaping devices that require users to add e-liquid to the device’s reservoir. These pod-based e-cigarettes are sleek, small, and innocuous looking, appearing more like a “high-tech/low-risk” gadget than an e-cigarette and are easily hidden in one’s hand. This diversity of e-cigarette forms available to consumers is important for commercial viability and has been implicated in the proliferation of uptake among youth, adult former smokers, and those trying to quit, belying claims of harm-reduction (Maziak, 2014).

While earlier public health tobacco prevention campaigns had the luxury of clear messaging that could remain consistent over long periods of time, we now appear to be entering a “Red Queen’s race” wherein constant innovation on the part of tobacco or nicotine-delivery device manufacturers must be met by innovation on the part of public health professionals. Such diversity of products could make it difficult to develop clear public health messages about the potential negative consequences of product use, thus rendering these communications less effective as they may not translate well across diverse products. Instead, multifaceted and adaptive messaging may be needed. A mismatch between messaging and the target tobacco product could lead to further misperceptions of health risks, including nicotine addiction, and result in continued or escalating uptake and use of these non-combustible products among otherwise nicotine-naïve adolescents and young adults, and former smokers of all ages.

Comprehensive tobacco control policies and clear public health messaging have been successful in reducing cigarette smoking prevalence worldwide (World Health Organization. WHO report on the global tobacco epidemic, 2017). The current rise in global use of non-combustible tobacco products requires that our response to currently-available novel non-combustible tobacco products and those likely to become available in the future includes diverse approaches based in scientific evidence, devoid of any tobacco-industry influence (Liu & Halpern-Felsher, 2018). Additionally, any responses must account for the impact of political and cultural influences on e-cigarette and other tobacco product use, with a recognition of their differential impact within diverse subgroups within the population. In this special issue, we have presented study findings on multiple factors impacting initiation and use of e-cigarette products, as well as novel methodological approaches and prevention ideas. Clearly, much more work needs to be done. The studies in this Special Issue begin to make inroads by both asking and answering important questions regarding use of novel non-combustible tobacco products.

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References

Ahmad I, & Dutra LM (2018). Imitating waterpipe: Another tobacco industry attempt to create a cigarette that seems safer. Addictive Behaviors (In press).

Ambrose BK, Day HR, Rostron B, et al. (2015). Flavored tobacco product use among us youth aged 12–17 years, 2013–2014. Journal of the American Medical Association, 314(17), 1871–1873. [PubMed: 26502219]

Ambrose BK, Rostron BL, Johnson SE, et al. Perceptions of the relative harm of cigarettes and E-cigarettes among U.S. youth. American Journal of Preventive Medicine; 47(2, Supplement 1):S53–S60. [PubMed: 25044196]

Barrientos-Gutierrez I, Lozano P, Arillo-Santillan E, Morello P, Mejia R, & Thrasher JF (2018). "Technophilia": A new risk factor for electronic cigarette use among early adolescents? Addictive Behaviors (In press).

Barrington-Trimis JL, Gibson LA, Halpern-Felsher B, et al. (2017). Type of e-cigarette device used among adolescents and young adults: Findings from a pooled analysis of eight studies of 2166 vapers. Nicotine & Tobacco Research, 20(2), 271–274.

Beaglehole R, Bonita R, Yach D, Mackay J, & Reddy KS (2015). A tobacco-free world: A call to action to phase out the sale of tobacco products by 2040. The Lancet, 385(9972), 1011–1018.

Berg CJ, Stratton E, Schauer GL, et al. (2015). Perceived harm, addictiveness, and social acceptability of tobacco products and marijuana among young adults: Marijuana, hookah, and electronic cigarettes win. Substance Use & Misuse, 50(1), 79–89. [PubMed: 25268294]

Bilano V, Gilmour S, Moffiet T, et al. (2015). Global trends and projections for tobacco use, 1990–2025: An analysis of smoking indicators from the WHO comprehensive information systems for tobacco control. Lancet, 385(9972), 966–976. [PubMed: 25784347]

Brown JE, Luo W, Isabelle LM, & Pankow JF (2014). Candy flavorings in tobacco.The New England Journal of Medicine, 370(23), 2250–2252. [PubMed: 24805984]

Campbell BK, Le T, Gubner NR, & Guydish J (2018). Health risk perceptions and reasons for use of tobacco products among clients in addictions treatment. Addictive Behaviors (In press).

Cantrell J, Emelle B, Ganz O, Hair EC, & Vallone D (2016). Rapid increase in e-cigarette advertising spending as altria's MarkTen enters the marketplace. Tobacco Control, 25(e1), e16–e18. [PubMed: 26530219]

Carey FR, Rogers SM, Cohn EA, Harrell MB, Wilkinson AV, & Perry CL (2018). Understanding susceptibility to e-cigarettes: A comprehensive model of risk factors that influence the transition from non-susceptible to susceptible among e-cigarette naïve adolescents. Addictive Behaviors (In press).

Chu K, Allem J, Unger JB, Cruz TB, Akbarpour M, & Kirkpatrick MG (2018). Strategies to find audience segments on twitter for e-cigarette education campaigns. Addictive Behaviors (In press).

Cooper MR, Case KR, Hébert ET, et al. (2018). Characterizing ENDS use in young adults with ecological momentary assessment: Results from a pilot study. Addictive Behaviors (In press).

Diez SL, Cristello JV, Dillon FR, De La Rosa M, & Trucco EM (2018). Validation of the electronic cigarette attitudes survey (ECAS) for youth. Addictive Behaviors (In press).

Erku DA, Gartner CE, Do JT, Morphett K, & Steadman KJ (2018). Electronic nicotine delivery systems (e-cigarettes) as a smoking cessation aid: A survey among pharmacy staff in Queensland, Australia. Addictive Behaviors (In press).

Felicione NJ, Enlow P, Elswick D, Long D, Sullivan C, & Blank MD (2018). A pilot investigation of the effect of electronic cigarettes on smoking behavior among opioid-dependent smokers. Addictive Behaviors (In press).

Fong GT, Elton-Marshall T, Driezen P, et al. (2018). US adult perceptions of the harmfulness of tobacco products: Descriptive findings from the 2013–14 baseline wave 1 of the path study. Addictive Behaviors (In press).

Giovenco DP, Lewis MJ, & Delnevo CD (2014). Factors associated with e-cigarette use: A national population survey of current and former smokers. American Journal of Preventive Medicine, 47(4), 476–480. [PubMed: 24880986]

Harrell MB, Loukas A, Jackson CD, Marti CN, & Perry CL (2017). Flavored tobacco product use among youth and young adults: What if flavors didn't exist? Tobacco Regulatory Science, 3(2), 168–173. [PubMed: 28775996]

Hefner KR, Sollazzo A, Mullaney S, Coker KL, & Sofuoglu M (2018). E-cigarettes, alcohol use, and mental health: Use and perceptions of e-cigarettes among college students, by alcohol use and mental health status. Addictive Behaviors (In press).

Hendlin YH, Veffer JR, Lewis MJ, & Ling PM (2017). Beyond the brotherhood: Skoal bandits' role in the evolution of marketing moist smokeless tobacco pouches. Tobacco Induced Diseases, 15(1), 46. [PubMed: 29270101]

Herbeć AA, Chang Y, Tindle HA, & Rigotti NA (2018). Smokers' use of electronic cigarettes before, during, and in the month after hospitalization. Findings from the helping HAND 2 study. Addictive Behaviors (In press).

Hong H, McConnell R, Liu F, Urman R, & Barrington-Trimis JL (2018). The impact of local regulation on reasons for electronic cigarette use among southern california young adults. Addictive Behaviors (In press).

Huang LL, Baker HM, Meernik C, Ranney LM, Richardson A, & Goldstein AO (2016). Impact of non-menthol flavours in tobacco products on perceptions and use among youth, young adults and adults: A systematic review. Tobacco Control (In press).

Hughes JR, & Callas PW (2018). Prevalence of withdrawal symptoms from electronic cigarette cessation: A cross-sectional analysis of the US population assessment of tobacco and health. Addictive Behaviors (In press).

Kalkhoran S, & Glantz SA (2016). E-cigarettes and smoking cessation in real-world and clinical settings: A systematic review and meta-analysis. The Lancet Respiratory Medicine, 4(2), 116–128. [PubMed: 26776875]

Kilibarda B, Krstev S, Milovanovic M, & Foley K (2018). E-cigarette use in Serbia: Prevalence, reasons for trying and perceptions. Addictive Behaviors (In press).

Kreitzberg DS, Murthy D, Loukas A, & Pasch KE (2018). Heat not burn tobacco promotion on instagram. Addictive Behaviors (In press).

Laestadius LI, Wahl MM, Pokhrel P, & Cho YI (2018). From apple to werewolf: A content analysis of marketing for e-liquids on instagram. Addictive Behaviors (In press).

Lee SJ, Sanders-Jackson A, Fallin-Bennett A, & Tan AS (2018). Comparing the effects of organic, natural, and no additives labels on tobacco packaging between lesbian, gay, bisexual (LGB) and heterosexual smokers. Addictive Behaviors (In press).

Liu J, & Halpern-Felsher B (2018). The juul curriculum is not the jewel of tobacco prevention education. The Journal of Adolescent Health, 63(5), 527–528. [PubMed: 30348276]

Lopez AA, & Eissenberg T (2015). Science and the evolving electronic cigarette.Preventive Medicine, 80, 101–106. [PubMed: 26190363]

Loukas A, Marti CN, Cooper M, Pasch KE, & Perry CL (2018). Exclusive e-cigarette use predicts cigarette initiation among college students. Addictive Behaviors, 76, 343–347. [PubMed: 28892771]

Ma JZ, Hart JL, Walker KL, et al. (2018). Perceived health risks of electronic nicotine delivery systems (ENDS) users: The role of cigarette smoking status. Addictive Behaviors (In press).

Malone R, McDaniel P, & Smith E (2014). Tobacco control endgames: Global initiatives and implications for the UK. Cancer Research UK (In press).

Maloney SF, Soule EK, Palafox S, et al. (2018). A longitudinal analysis of electronic cigarette forum participation. Addictive Behaviors (In press).

Maziak W (2014). Harm reduction at the crossroads: The case of e-cigarettes. AmericanJournal of Preventive Medicine, 47(4), 505–507. [PubMed: 25092121]

McDaniel PA, Smith EA, & Malone RE (2016). The tobacco endgame: A qualitative review and synthesis. Tobacco Control, 25(5), 594–604. [PubMed: 26320149]

McKelvey K, Baiocchi M, & Halpern-Felsher B (2018). Adolescents' and young adults' use and perceptions of pod-based electronic cigarettes. JAMA Network Open, 1(6), e183535. [PubMed: 30646249]

McKelvey K, Baiocchi M, Ramamurthi D, McLaughlin S, & Halpern-Felsher B (2018). Youth say ads for flavored e-liquids are for them. Addictive Behaviors (In press).

Mead EL, Duffy V, Oncken C, & Litt MD (2018). E-cigarette palatability in smokers as a function of flavorings, nicotine content and propylthiouracil (PROP) taster phenotype. Addictive Behaviors (In press).

Morean ME, Krishnan-Sarin S, Sussman S, et al. (2018). Development and psycho-metric validation of a novel measure of sensory expectancies associated with E-cigarette use. Addictive Behaviors (In press).

NIDA. Tobacco/nicotine and E-cigs. https://www.drugabuse.gov/drugs-abuse/tobacconicotine-e-cigs. Updated 2017. Accessed 09/12, 2017, 2017.

Noar SM, Rohde JA, Horvitz C, Lazard AJ, Ross JC, & Sutfin EL (2018). Adolescents' receptivity to E-cigarette harms messages delivered using text messaging. Addictive Behaviors (In press).

Padon AA, Maloney EK, & Cappella JN (2017). Youth-targeted e-cigarette marketing in the US. Tobacco Regulatory Science, 3(1), 95–101. [PubMed: 28083545]

Pentz MA, Hieftje KD, Pendergrass TM, et al. (2018). A videogame intervention for tobacco product use prevention in adolescents. Addictive Behaviors (In press).

Pénzes M, Foley KL, Nădăşan V, Paulik E, Ábrám Z, & Urbán R (2018). Bidirectional associations of e-cigarette, conventional cigarette and waterpipe experimentation among adolescents: A cross-lagged model. Addictive Behaviors, 80, 59–64. [PubMed: 29355818]

Pepper JK, & Brewer NT (2014). Electronic nicotine delivery system (electronic cigarette) awareness, use, reactions and beliefs: A systematic review. Tobacco Control, 23(5), 375–384. [PubMed: 24259045]

Pepper JK, Squiers LB, Peinado SC, et al. (2018). Impact of messages about scientific uncertainty on risk perceptions and intentions to use electronic vaping products. Addictive Behaviors (In press).

Perkins KA, Herb T, & Karelitz JL (2018). Discrimination of nicotine content in electronic cigarettes. Addictive Behaviors (In press).

Primack BA, Soneji S, Stoolmiller M, Fine MJ, & Sargent JD (2015). Progression to traditional cigarette smoking after electronic cigarette use among US adolescents and young adults. JAMA Pediatrics, 169(11), 1018–1023. [PubMed: 26348249]

Purkayastha D (2013). BAT ramps-up E-cigarette expansion as sales go up in smoke. International Business Times. Available from: https://www.ibtimes.co.uk/british-american-tobacco-e-cigarette-profit-vype-495893, Accessed date: 3 December 2018.

Rangel-Gomez M, Cruz-Cano R, Van Wagoner C, Kidanu A, McDonald CG, & Clark PI (2018). Dissociating the effect of flavor and nicotine in smokeless tobacco products using electroencephalography: The case of wintergreen flavors. Addictive Behaviors (In press).

Sawdey MD, Day HR, Coleman B, et al. (2018). Associations of risk factors of e-cigarette and cigarette use and susceptibility to use among baseline PATH study youth participants (2013–2014). Addictive Behaviors (In press).

Shiffman S, Sembower MA, Pillitteri JL, Gerlach KK, & Gitchell JG (2015). The impact of flavor descriptors on nonsmoking teens' and adult smokers' interest in electronic cigarettes. Nicotine & Tobacco Research, 17(10), 1255–1262. [PubMed: 25566782]

Soar K, Kimber C, McRobbie H, & Dawkins L (2018). Nicotine absorption from e-cigarettes over 12 months. Addictive Behaviors (In press).

Soule EK, Sakuma KK, Palafox S, et al. (2018). Content analysis of internet marketing strategies use to promote flavored electronic cigarettes. Addictive Behaviors (In press).

Stroud LR, Papandonatos GD, Borba K, Kehoe T, & Scott-Sheldon LA (2018). Flavored electronic cigarette use, preferences, and perceptions in pregnant mothers: A correspondence analysis approach. Addictive Behaviors (In press).

Stroup AM, & Branstetter SA (2018). An introduction to the electronic waterpipe.Addictive Behaviors (In press).

Trumbo CW, & Harper R (2015). Perceived characteristics of e-cigarettes as an innovation by young adults. Health Behavior and Policy Review, 2(2), 154–162. [PubMed: 25729752]

US Department of Health and Human Services (2012). Preventing tobacco use among youth and young adults: A report of the surgeon general. 3. Atlanta, GA: US Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health.

Veldheer S, Yingst J, Midya V, et al. (2018). Pulmonary and other health effects of electronic cigarette use among adult smokers participating in a randomized controlled smoking reduction trial. Addictive Behaviors (In press).

Wackowski OA, Ray AE, & Stapleton JL (2018). Smokers' perceptions of risks and harm from snus relative to cigarettes: A latent profile analysis study. Addictive Behaviors (In press).

World Health Organization. WHO report on the global tobacco epidemic, 2017:Monitoring tobacco use and prevention policies. 2017.

Wray RJ, Jupka K, Berman S, Zellin S, & Vijaykumar S (2012). Young adults' perceptions about established and emerging tobacco products: Results from eight focus groups. Nicotine & Tobacco Research, 14(2), 184–190. [PubMed: 22110049]

Yang B, Spears CA, & Popova L (2018). Psychological distress and responses to comparative risk messages about electronic and combusted cigarettes. Addictive Behaviors (In press).

Yingst J, Foulds J, Veldheer S, & Du P (2018). Device characteristics of long term electronic cigarette users: A follow-up study. Addictive Behaviors (In press).