



STATE OF HAWAII  
DEPARTMENT OF HEALTH  
P. O. Box 3378  
Honolulu, HI 96801-3378  
doh.testimony@doh.hawaii.gov

**Testimony COMMENTING on SB0299  
RELATING TO ELECTRONIC SMOKING DEVICES**

SENATOR JOSH GREEN, CHAIR, SENATE COMMITTEE ON HEALTH  
SENATOR ROSALYN H. BAKER, CHAIR, SENATE COMMITTEE ON COMMERCE AND  
CONSUMER PROTECTION

Hearing Date: February 10, 2015

Room Number: 229

1 **Fiscal Implications:** None.

2 **Testimony:** The Department of Health (DOH) appreciates the intent of SB0299 which takes a  
3 comprehensive approach to regulate the proliferation of sales and the use of electronic smoking  
4 devices (ESD) in Hawaii. The bill has many merits and the Department appreciates the effort  
5 through this measure to protect our youth.

6 The Department supports establishing an excise tax on ESD kits, ESD nicotine cartridges,  
7 or ESD nicotine refills sold, used, or possessed by a wholesaler or dealer. Assessing taxes on  
8 tobacco products has been shown to be an effective tool for preventing youth from  
9 experimenting and becoming regular users. The DOH concurs there is a nexus for allocating the  
10 new ESD tax and using it to reduce youth initiation of tobacco products including ESDs. From  
11 2011 to 2013, the use of ESDs by middle and high school students has quadrupled and tripled  
12 (Hawaii Youth Tobacco Survey). The Department defers to the Department of Taxation for the  
13 technical implications.

14 The inclusion of ESDs in the Hawaii State smoke-free air law will continue to protect the  
15 health of the public, and provide clarity on smoke-free regulations. In the U.S., 274  
16 municipalities and three states have now included ESDs in their smoke-free laws. In January  
17 2014, the DOH adopted its own internal policy banning ESD use on all DOH properties and  
18 occupied premises. As of September 2014, the State Department of Accounting and General  
19 Services further prohibits ESD use in and around all state buildings under its jurisdiction. Most

1 recently, Hawaii County enacted Bill 302, prohibiting the use of ESDs wherever tobacco  
2 products are already illegal.

3 The DOH supports raising the age of sale and purchase from 18 to 21 years for ESDs.  
4 The DOH would support increasing the age for sale and purchase to apply to all tobacco  
5 products.

6 **Offered Amendments:** The DOH recommends the following amendments:

7 • Section 1. Section 245-1, (page 1, lines 4 to 9); Section 4. Section 328J-1.1, (page  
8 10, lines 13 to 18); and Section 5. Section 709-908(6), (page 14, lines 4 to 10), the  
9 following ESD definition has been approved by the Office of the Attorney General:

10 ““Electronic smoking device” means any electronic product that can be  
11 used to aerosolize and deliver nicotine or other substances to the person  
12 inhaling from the device, including but not limited to an electronic cigarette,  
13 electronic cigar, electronic cigarillo, or electronic pipe, hookah pipe, or  
14 hookah pen, and any cartridge or other component of the device or related  
15 product, whether or not sold separately.”

16 • Section 2. Section 245-3(a)(14), page 5, lines 7 to 14, instead of the proposed ESD  
17 tax at 30% of wholesale value, an amount equal to the excise tax on other tobacco  
18 products which is currently 70% be applied.

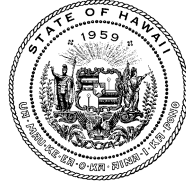
19 • Section 5. Section 709-908, pages 11 to 13, DOH recommends that the age of sale  
20 apply to all tobacco products including ESDs through another legislative vehicle.

21 The title of this bill is limited only to ESDs.

22 Thank you for the opportunity to testify.

DAVID Y. IGE  
GOVERNOR

SHAN TSUTSUI  
LT. GOVERNOR



MARIA E. ZIELINSKI  
DIRECTOR OF TAXATION

STATE OF HAWAII  
**DEPARTMENT OF TAXATION**  
P.O. BOX 259  
HONOLULU, HAWAII 96809  
PHONE NO: (808) 587-1540  
FAX NO: (808) 587-1560

To: The Honorable Josh Green, Chair  
and Members of the Senate Committee on Health

The Honorable Rosalyn H. Baker, Chair  
and Members of the Senate Committee on Commerce and Consumer Protection

Date: Tuesday, February 10, 2015  
Time: 9:00 A.M.  
Place: Conference Room 229, State Capitol

From: Maria E. Zielinski, Director  
Department of Taxation

Re: S.B. 299 Relating to Electronic Smoking Devices

The Department of Taxation (Department) provides the following comments on S.B. 299 for your consideration.

S.B. 299 amends the Cigarette Tax and Tobacco Tax Law by adding a new definition for "electronic smoking devices," imposing a tax of 30% of the wholesale price on the sale of such devices, and stating that all Cigarette Tax and Tobacco Tax revenue be deposited in the Hawaii Tobacco Prevention and Control Fund. This measure also makes it illegal to sell electronic smoking devices to anyone under the age of 21.

The Department defers to the Department of Health regarding the effect taxing electronic smoking devices would have on the State's health and wellness.

The Department notes that Hawaii Revised Statutes section 245-3 imposes the Cigarette and Tobacco Tax on wholesalers and dealers, who are defined specifically as persons who sell cigarettes or tobacco products. Because the definition of neither "cigarette" nor "tobacco products" includes electronic smoking devices, this bill would not actually impose any tax on a person who sells electronic smoking devices but does not sell any other tobacco products. The Department suggests that the definition of "dealer" and "wholesaler" be amended to reflect the intent to impose the tax on the "electronic smoking devices".

The Department also recommends changing the term "electronic smoking device" to "electronic smoking product" as it believes this term more accurately describes the broad category of items that the bill intends to tax, including not just the electronic devices themselves, but also other products related to their use.

Thank you for the opportunity to provide comments.

# TAXBILLSERVICE

126 Queen Street, Suite 304

TAX FOUNDATION OF HAWAII

Honolulu, Hawaii 96813 Tel. 536-4587

SUBJECT: TOBACCO, Electronic smoking devices

BILL NUMBER: SB 299

INTRODUCED BY: Green, Baker, Harimoto and 7 Democrats

**EXECUTIVE SUMMARY:** Subjects electronic smoking devices to the tobacco tax of 30% of wholesale price on or after January 1, 2016. First, it is questionable why this particular product is subject to the tobacco tax because it doesn't contain any tobacco. Second, if the ultimate goal is to get this product off the market then it should be banned; instead, it seems that lawmakers would rather let consumers live dangerously but bleed them to death with confiscatory taxes while they do.

**BRIEF SUMMARY:** Amends HRS section 245-3 so an excise tax of 30% shall be imposed on the wholesale price of each electronic smoking device kit, electronic smoking device nicotine cartridge, or electronic smoking device nicotine refill sold, used, or possessed by a wholesaler or dealer on or after January 1, 2016.

Amends HRS section 245-1 to add a definition of "electronic smoking device" as any electronic product that can be used to vaporize and deliver nicotine or other substances to the person inhaling from the device, including but not limited to an electronic cigarette, electronic cigar, electronic cigarillo, or electronic pipe, and any cartridge or other component of the device or related product.

After January 1, 2016, all proceeds derived from the excise tax on electronic smoking devices shall be deposited to the credit of the Hawaii tobacco prevention and control trust fund.

Makes other nontax amendments to provide that electronic smoking devices shall be subject to the anti-smoking laws and the laws regulating the sale, distribution, or display of such devices similar to cigarettes and other tobacco products.

EFFECTIVE DATE: July 1, 2015

**STAFF COMMENTS:** Traditional cigarettes, the current subject of the tobacco tax, have been proven to be a health hazard. Electronic smoking devices appeared on the market in 2004. These devices contain nicotine, but do not produce other hazardous substances associated with a traditional cigarette. Given the fact that there is no tobacco being consumed with these electronic smoking devices, it is questionable why this particular product should be placed under the tobacco tax. It may be a substitute for a tobacco product, but so are other products like nicotine gum. How should these latter products be taxed, if at all? As noted many times before, if the health department believes that products such as cigarettes, chewing tobacco, and other forms of tobacco consumption are bad for the community's health, then those products should be banned altogether. Apparently, lawmakers do not want to give up the revenues they reap from the heavy taxes imposed on these products.

The proposed measure also provides that the revenues derived from the proposed tax on electronic smoking devices shall be deposited into the Hawaii tobacco prevention and control trust fund.

Care should be exercised in attempting to generate additional revenues from the tobacco tax. Hawaii's tax rates on these products are already among the highest in the nation. Not only would another rate increase reaffirm the perception that Hawaii is a tax hell, but it would probably have an effect on behavior. Not only might it drive consumers to quit smoking, which theoretically is what health advocates want, but it may also drive consumers to find other sources for these products that would not incur the tax. Mail order and Internet sales are sources of product that could escape taxation as well as black market purchases made from the military reservations in Hawaii. So instead of seeing growing collections from higher tax rates, lawmakers may just find that collections will drop due to its efforts to discourage consumption and send consumers to other markets. As noted above, the higher one pushes the cost of these products, the greater the possibility of actually seeing a decline in collections as consumers either could moderate consumption or shift it in ways that would avoid the tax. In fact, as was evidenced in the states of New Jersey and Maryland, lawmakers there counted on an increase in the cigarette tax to help balance their budgets only to learn that collections actually went down below their prior levels. Thus, care should be exercised in targeting these products for specific programs or services.

For this very reason, earmarking the tax for a specific project or program could actually backfire. For example, should cigarette consumption decline, the amounts earmarked will also decline. If it is the intent of the legislature to provide adequate revenue to the stated programs, a direct appropriation would be preferable.

It should be noted that the hikes in the cigarette tax have begun to have an effect on collections not only locally but also nationally. Indeed, customers seem to be reaching the breaking point, as tobacco tax collections have fallen below their previous levels. For whatever reason, the rise in rate has jeopardized this source of revenue. If nothing else, lawmakers need to make up their minds whether or not they see this tax as a source of revenue or a means to deter consumption.

Digested 2/6/15



STATE OF HAWAII  
DEPARTMENT OF HEALTH  
P. O. Box 3378  
Honolulu, HI 96801-3378  
doh.testimony@doh.hawaii.gov

**Testimony in SUPPORT of SB1030  
RELATING TO HEALTH**

SENATOR JOSH GREEN, CHAIR, SENATE COMMITTEE ON HEALTH  
SENATOR ROSALYN H. BAKER, CHAIR, SENATE COMMITTEE ON COMMERCE AND  
CONSUMER PROTECTION

Hearing Date: February 10, 2015

Room Number: 229

1 **Fiscal Implications:** None.

2 **Department Testimony:** The Department of Health (DOH) supports the passage of SB1030 as  
3 a measure to reduce smoking and other tobacco product (OTP) use by young persons.

4 This measure amends §709-908, Hawaii Revised Statutes (HRS) to prohibit the sale or  
5 furnishing of tobacco products, including electronic smoking devices (ESDs), to any person  
6 under 21 years of age, and further bans persons under 21 from purchasing any tobacco product.  
7 The proposed bill also amends the legal definitions of “electronic smoking device” and “tobacco  
8 products.”

9 Tobacco use remains the leading cause of preventable disease, disability, and death in the  
10 United States. Nationally, nearly 1,000 youth under the age of 18 become regular smokers daily,  
11 and almost one-third of them will die from it. The 2013 Hawaii Youth Risk Behavior Survey  
12 reports that in the state of Hawaii, 10% of high school youth or 4,400 youth currently smoke.  
13 15% of young adults, aged 18 to 24 years (19,400), are also current smokers according to the  
14 2013 Behavioral Risk Factor Surveillance System.

15 National data from the 2012 United States Surgeon General’s report show that 95% of  
16 adult smokers begin smoking before the age of 21 years, and 80% try their first cigarette before  
17 age 18. Nearly half of adult smokers become regular, daily smokers before age 18; more than  
18 75% become regular, daily smokers before they turn 21. This means the 18 to 21 year group is a  
19 time when many smokers transition to regular use of cigarettes. Tobacco companies heavily  
20 target young adults through a variety of marketing activities because they know it is a critical

1 time period for solidifying nicotine addiction. They have admitted in their own internal  
2 documents the importance of increasing consumption within this target group in order to  
3 maintain a profitable business. The ESD companies (which are increasingly owned by large  
4 tobacco companies) are now using well-established advertising techniques promoting ESDs that  
5 they have previously used to promote and market tobacco use to youth.

6 In addition to high tobacco taxes, comprehensive smoke-free laws, and comprehensive  
7 tobacco prevention and control programs, increasing the minimum legal sale age for tobacco  
8 products, from 18 to 21 years, has emerged as a recommended policy strategy to reduce youth  
9 tobacco use and help users quit. The August issue of the *Annals of Internal Medicine* cited a  
10 “hypothetical health policy model in which the tobacco age of sales is increased to 21 years,  
11 projected that youth smoking prevalence could be expected to drop from 22% to less than 9%  
12 among persons aged 15 to 17 years within seven years.”

13 The County of Hawaii led the state in enacting legislation in December 2013 to raise the  
14 minimum legal age for the sale of tobacco products. There are now four states, and a number of  
15 municipalities, including New York City, that have passed similar legislation. Currently, three  
16 more states – Utah, Washington State and California – have introduced “Age 21 Legislation”  
17 comparable to SB1030.

18 The DOH supports the inclusion of ESDs in this bill as a key element in limiting access  
19 to this potentially hazardous product to persons under 21. The University of Hawaii Cancer  
20 Center (UHCC), in a recent report, acknowledges that nearly half of all young adults in Hawaii  
21 have tried ESDs, and 28% reported using ESDs in the past 30 days.<sup>1</sup>

22 A second school-based survey by the UHCC, published in the January 2015 issue of  
23 *Pediatrics*, found that 29% of Hawaii ninth and tenth graders in a study; had tried ESDs, one of  
24 the highest rates of adolescent e-cigarette only use in the existing literature. The 2013 Hawaii  
25 Youth Tobacco Survey provides additional data that show Hawaii students are experimenting  
26 more with ESDs than their peers in the continental United States. ESD current use is increasing

---

<sup>1</sup> Pokhrel P, Little MA, Fagan P, Muranaka N, Herzog TA. Electronic cigarette use outcome expectancies among college students. *Addic Behav.* 2014 Un; 39(6): 1062-5



1 alarmingly. Usage has tripled among our high school students and quadrupled among middle  
2 school students from 2011 to 2013.

3 SB1030 could increase the age gap between adolescents initiating tobacco use, including  
4 ESDs, and those who can legally provide them with tobacco products. It could reduce the risk of  
5 young people transitioning to regular or daily use. Adolescents would find it more difficult to  
6 pass themselves off as 21-year olds than 18-year olds, and it would simplify identification checks  
7 for retailers.

8 The DOH realizes that such a measure would not totally eliminate underage tobacco use,  
9 but does support SB1030 as a viable strategy to reduce access to tobacco for a young and  
10 vulnerable population and prevent a lifelong addiction.

11 **Offered Amendments:** For the purposes of consistency, the DOH recommends amending  
12 SB1030 to include the following definition of ESDs, as approved by the State Attorney General:

13 ““Electronic smoking device” means any electronic product that can be used to aerosolize  
14 and deliver nicotine or other substances to the person inhaling from the device, including  
15 but not limited to an electronic cigarette, electronic cigar, electronic cigarillo, electronic  
16 pipe, hookah pipe, or hookah pen, and any cartridge or other component of the device or  
17 related product, whether or not sold separately.”

18 SB1030 references July 1, 2015 as the date of implementation and the date new signage  
19 be posted regarding tobacco products and ESDs, but the measure’s effective date is currently  
20 written as January 1, 2016. The DOH recommends that the implementation date and mandatory  
21 signage compliance dates as outlined in Section 1, subparagraphs 1 and 2, be amended to  
22 January 1, 2016 to match the bill’s effective date as written in Section 3.

23 Thank you for this opportunity to testify.



American Cancer Society  
Cancer Action Network  
2370 Nu`uanu Avenue  
Honolulu, Hawai`i 96817  
808.432.9149  
[www.acscan.org](http://www.acscan.org)

February 9, 2015

Senate Committee on Health  
Senator Josh Green, Chair  
Senator Glenn Wakai, Vice Chair

Senate Committee on Commerce and Consumer Protection  
Senator Rosalyn Baker, Chair  
Senator Brian Taniguchi, Vice Chair

Public Hearing: February 10, 9:00 am

**SB 299 RELATING TO ELECTRONIC SMOKING DEVICES.**

Cory Chun, Government Relations Director – Hawaii Pacific  
American Cancer Society Cancer Action Network

Thank you for the opportunity to provide testimony in support of SB 299, which defines electronic smoking devices, establishes an excise tax, includes it in the smoke-free workplace law, and changes the age of sale from 18 to 21.

The American Cancer Society Cancer Action Network (ACS CAN) is the nation's leading cancer advocacy organization. ACS CAN works with federal, state, and local government bodies to support evidence-based policy and legislative solutions designed to eliminate cancer as a major health problem.

Electronic smoking devices are often designed to look like cigarettes, right down to the glowing tip. When the user puffs on it, the system delivers an aerosol that is inhaled. A growing number of studies have examined the contents of electronic smoking device aerosol. Unlike a vapor, an aerosol contains fine particles of liquid, solid, or both. Propylene glycol, nicotine, and flavorings were most commonly found in electronic smoking device aerosol. Other studies have found the aerosol to contain heavy metals, volatile organic compounds and tobacco-specific nitrosamines, among other potentially harmful chemicals. The electronic smoking device is often marketed as a way for a smoker to get nicotine in places where smoking is not allowed.

While the health effects of electronic smoking devices are currently under study, there are still serious questions about the safety of inhaling the substances in an electronic smoking device aerosol. Studies have shown that the use of electronic smoking devices can cause short-term lung changes and irritations, while the long-term health effects are unknown. Both exposure to and health effects of secondhand aerosol from electronic smoking devices require further research, but preliminary studies indicate nonusers can be exposed to the same potentially harmful chemicals as users, including nicotine, ultrafine particles and volatile organic compounds. This exposure could be especially problematic for vulnerable populations such as children, pregnant women, and people with heart disease depending on the level of exposure.

Since the introduction of electronic smoking devices to the U.S. market, the marketing and use of these products have significantly increased. A U.S. Centers for Disease Control survey published in 2013 showed that electronic smoking device usage in middle school and high school students doubled between 2011 and 2012, increasing from 3.3 to 6.8 percent.

While electronic smoking device manufacturers may claim the ingredients are just “water vapor” or “safe,” without federal regulation there is no sure way for electronic smoking device users to know what they are consuming. Nor is there any way of knowing what nonusers are exposed to and the extent of the risk to their health. Additionally, there are hundreds of types of electronic smoking devices on the market today and the products vary considerably by ingredients, and quality control and assurance. Prohibiting the use of electronic smoking devices in workplaces, restaurants, and bars can protect the public health by preventing nonusers from being exposed to nicotine and other potentially harmful chemicals in these products.

We support the proposals put forth in this measure, although we would like to see electronic smoking devices taxed at the same rate as other tobacco products. We also recommend the following definition for electronic smoking devices to include all types of electronic smoking device products:

*“Electronic Smoking Device” means any product containing or delivering nicotine or any other substance intended for human consumption that can be used by a person to simulate smoking through inhalation of vapor or aerosol from the product. The term includes any such device, whether manufactured, distributed, marketed, or sold as an e-cigarette, e-cigar, e-pipe, e-hookah, or vape pen, or under any other product name or descriptor.*

Thank you for the opportunity to submit testimony on this matter.



To: The Honorable Josh Green, Chair, Committee on Health  
The Honorable Glenn Wakai, Vice Chair, Committee on Health  
Members, Senate Committee on Health

The Honorable Rosalyn H. Baker, Chair, Committee on Commerce and Consumer Protection  
The Honorable Brian T. Taniguchi, Vice Chair, Committee on Commerce and Consumer Protection  
Members, Senate Committee on Commerce and Consumer Protection

From: Lyndsey Garcia, Policy and Advocacy Director

Date: February 9, 2015

Hrg: Senate Committee on Health / Commerce and Consumer Protection; Tuesday, February 10, 2015 at 9:00AM in Room 229

Re: **Support and comments for SB 299, Relating to Electronic Smoking Devices**

---

Thank you for the opportunity to offer testimony in **support** of Senate Bill 299, which regulates electronic smoking devices (ESDs) by amending 245, 328J, and 709-908 of the Hawaii Revised Statutes (HRS). The Coalition for a Tobacco Free Hawai`i appreciates the comprehensive approach to regulate ESDs; however, we recommend a few changes for the sake of consistency and clarity.

The Coalition for a Tobacco Free Hawai`i (Coalition) is a program of the Hawai`i Public Health Institute working to reduce tobacco use through education, policy and advocacy. Our program consists of over 100 member organizations and 2,000 advocates that work to create a healthy Hawai`i through comprehensive tobacco prevention and control efforts.

**The Coalition supports Sections 2 and 3, establishing an excise tax on ESDs and recommends that it be consistent with other tobacco products.**

The Coalition supports establishing an excise tax on ESDs and treating them similarly to other tobacco products and supports the earmark for the Hawaii tobacco prevention and control trust fund with an emphasis on teen smoking prevention and cessation programs.

ESDs, often referred to as e-cigarettes, heat and vaporize a solution that typically contains nicotine, and are often designed to mimic the look and feel of a real cigarette.<sup>1</sup> As tobacco products, ESDs should be taxed similarly to other tobacco products. SB 299 amends Section 245 of the HRS and establishes an excise tax of 30 per cent of the wholesale price of each ESD kit, nicotine cartridge, or nicotine refill sold, used, or possessed by a wholesale or dealer. Currently, the excise tax on other tobacco products, other than large cigars, is **seventy per cent** of the wholesale price. Taxing ESDs as other tobacco products falls in line with the example of Minnesota which also passed an ESD tax.<sup>2</sup>

---

<sup>1</sup> Americans for Nonsmokers' Rights, "Electronic Smoking Devices (ESDs) and Smokefree Laws", available at [www.no-smoke.org/eigs.html](http://www.no-smoke.org/eigs.html).

<sup>2</sup> Minnesota Department of Health, "Tobacco Prevention and Control: Electronic Cigarettes," available at <http://www.health.state.mn.us/ecigarettes>



ESDs are sold in various forms, including ESD kits that include “starter kits” or “starter packs” and single use disposable e-cigarettes. ESD kits can contain cartridges that can be changed or refilled. Refill liquid, also referred to as “e-juice” or “e-liquid” or “smoke juice”, comes in separate containers that can then be poured into the cartridge. The Coalition supports taxing the various ESD parts following the example of Minnesota.

**The Coalition supports Section 4, including ESDs in Hawai`i’s smoke-free air laws, which will provide for further consistency and protections of our residents and visitors.**

SB 299 also amends 328J to include ESDs in Hawai`i state smoke-free air laws. Currently ESDs are not regulated at any level (federal or state); therefore, all emissions and chemicals released in exhalation are also unregulated. There is no way for users to know how much nicotine or other potentially harmful chemicals they are inhaling because ESDs are not FDA regulated and are not FDA approved cessation devices.

ESDs do not emit only “harmless water vapor” as claimed by the industry. “Secondhand aerosol (incorrectly called vapor by the industry) from ESDs contains nicotine, ultrafine particles and levels of toxins.”<sup>3</sup> It is vital that we protect everyone from the dangers of secondhand aerosol. According to Dr. Stanton Glantz, Director for the Center for Tobacco Control Research and Education at the University of California, San Francisco, “If you are around somebody who is using e-cigarettes, you are breathing an aerosol of exhaled nicotine, ultra-fine particles, volatile organic compounds, and other toxins.”<sup>4</sup> Studies have shown that even ESDs claiming to not contain nicotine contain low levels of nicotine.<sup>5</sup>

The World Health Organization (WHO) recommends that “legal steps should be taken to end use of e-cigarettes indoors in public and work places. Evidence suggest that exhaled e-cigarette aerosol increases the background air level of some toxicants, nicotine and particles.”<sup>6</sup>

Emerging research shows dual use where cigarette users switch to ESDs in locations they are not permitted to smoke.<sup>7</sup> Allowing the use of ESDs in locations where smoking is prohibited is problematic as ESD use puts innocent bystanders around the ESD user who breathe ESD aerosol at risk for illness, creates distractions in the workplace, threatens the social norm, and undercuts years of progress by tobacco control groups.

**The Coalition supports the intent of Section 5, raising the age of sale of ESDs to twenty-one.**

The Coalition supports the intent of Section 5 of SB 299, which would amend Section 709-908 of the HRS to make it unlawful to sell or furnish an electronic smoking device to a minor under twenty-one years of age.

---

<sup>3</sup> Americans for Nonsmokers’ Rights, “Electronic Smoking Devices and Secondhand Aerosol”, available at [www.no-smoke.org/pdf/ecigarette-secondhand-aerosol.pdf](http://www.no-smoke.org/pdf/ecigarette-secondhand-aerosol.pdf).

<sup>4</sup> Ibid

<sup>5</sup> Available at <http://northcoastalpreventioncoalition.org/wp-content/uploads/2013/11/E-Cigarettes-Fact-Sheet.pdf>.

<sup>6</sup> Noncommunicable diseases and mental health: Background on WHO report on regulation of e-cigarettes and similar products.” Available at: <http://www.who.int/nmh/events/2014/background-e-cigarettes/en>

<sup>7</sup> Centers for Disease Control and Prevention (CDC). Notes from the field: electronic cigarette use among middle and high school students -- United States, 2011-2012. MMWR Morb Mortal Wkly Rep. 2013;62:729-730. Available at [http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6235a6.htm?s\\_cid=mm6235a6\\_w](http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6235a6.htm?s_cid=mm6235a6_w)



The Coalition is extremely concerned about the rising trend of youth use. In Hawai`i, high school tobacco use rate has continued to drop over the last decade from 24.5% in 2000 to 8.7% in 2011, however the use of e-cigarettes is on the rise.<sup>8</sup> Youth usage of ESDs is at an alarming rate especially in the state of Hawai`i where teen use is twice as high as the national average. According to the Hawai`i Youth Tobacco Survey (2013) youth usage (at least once in the past 30 days) tripled (18%) among high school students and quadrupled (8%) among middle school students. The Centers for Disease Control and Prevention reports more than a quarter-million youth who had never smoked a cigarette used e-cigarettes in 2013.

While the Coalition believes that the age of sale for ESDs should be raised to twenty-one, we believe that it might be difficult without doing the same for cigarettes and other tobacco products.

### **State and local action is key to regulating ESD use**

While the Coalition welcomes federal regulations on ESDs, we do not believe Hawai`i can afford to wait for the U.S. Food and Drug Administration to issue regulations on ESDs. According to Dr. Stan Glantz in reaction to possible forthcoming rules on ESDs from the FDA: “The meaningful action of e-cigarettes will remain at the state and local level, especially including them in clean indoor air laws (I hope that the state and local policy makers do not swallow the inevitable [sic] arguments that they don’t need anything because the FDA is taking care of it.)<sup>9</sup>

Restricting ESD use is a growing trend across the U.S. More than 225 municipalities and three states restrict the use of ESDs in smoke-free environments including New York City, Los Angeles, Long Beach, San Diego, and Boston. In Hawai`i, state and county officials have taken the first few steps in regulating ESDs. The State moved to protect employees, first prohibiting the use in all Department of Health facilities, then by extending it to all buildings under Department of Accounting and General Services. In December, the Hawai`i County Council passed a bill that includes ESDs in all their smoke-free ordinances.

We respectfully ask you to pass this measure to build upon Hawai`i’s previous successes and ensure the safety of everyone.

Thank you for the opportunity to testify on this matter.

Respectfully,

A handwritten signature in black ink that reads "Lyndsey Garcia". The signature is written in a cursive, flowing style.

Lyndsey Garcia  
Policy and Advocacy Director

<sup>8</sup> The Hawaii Health Data Warehouse, State of Hawaii, Hawaii School Health Survey, Youth Tobacco Survey Module. Available at: [http://www.hhdw.org/cms/uploads/Data%20Source\\_%20YTS/YTS\\_Prevalence\\_IND\\_00001.pdf](http://www.hhdw.org/cms/uploads/Data%20Source_%20YTS/YTS_Prevalence_IND_00001.pdf).

<sup>9</sup> Stan Glantz, “First reaction to e-cigarette deeming (based on press reports): FDA leaves ecigarette marketing unscathed.”

**From:** [mailinglist@capitol.hawaii.gov](mailto:mailinglist@capitol.hawaii.gov)  
**To:** [HTHTestimony](#)  
**Cc:** [mz9995@hotmail.com](mailto:mz9995@hotmail.com)  
**Subject:** Submitted testimony for SB299 on Feb 10, 2015 09:00AM  
**Date:** Monday, February 09, 2015 7:41:25 AM

---

**SB299**

Submitted on: 2/9/2015

Testimony for HTH/CPN on Feb 10, 2015 09:00AM in Conference Room 229

| <b>Submitted By</b> | <b>Organization</b>     | <b>Testifier Position</b> | <b>Present at Hearing</b> |
|---------------------|-------------------------|---------------------------|---------------------------|
| Michael Zehner      | Hawaii Smokers Alliance | Oppose                    | Yes                       |

Comments: This bill is unjust because electronic smoking devices don't cause cancer and don't harm anyone. Furthermore we find it really sick that supposed "anti-smoking" advocates would oppose the most successful product ever causes people to stop smoking tobacco.

Please note that testimony submitted less than 24 hours prior to the hearing, improperly identified, or directed to the incorrect office, may not be posted online or distributed to the committee prior to the convening of the public hearing.

Do not reply to this email. This inbox is not monitored. For assistance please email [webmaster@capitol.hawaii.gov](mailto:webmaster@capitol.hawaii.gov)

From: [mailinglist@capitol.hawaii.gov](mailto:mailinglist@capitol.hawaii.gov)  
To: [HTHTestimony](#)  
Cc: [blackblobofjustice@gmail.com](mailto:blackblobofjustice@gmail.com)  
Subject: Submitted testimony for SB299 on Feb 10, 2015 09:00AM  
Date: Saturday, February 07, 2015 11:27:34 PM

---

## **SB299**

Submitted on: 2/7/2015

Testimony for HTH/CPN on Feb 10, 2015 09:00AM in Conference Room 229

| <b>Submitted By</b> | <b>Organization</b> | <b>Testifier Position</b> | <b>Present at Hearing</b> |
|---------------------|---------------------|---------------------------|---------------------------|
| Aaron Sullivan      | Individual          | Comments Only             | No                        |

Comments: SB299 Bill SB299, which would cause a tax on vaping products and an age raise to 21 would cause a harm to both the people of Hawaii and Hawaii's economy. A 30 percent tax to electronic cigarettes and their accessories would cause many people to go back to smoking cigarettes. The majority of people that I know have either started vaping because they wanted to quit smoking. Raising the price of these products would cause these people to resort back to cigarettes. Not taxing these products would cause more people to move from smoking to vaping and would give the people of hawaii a healthier lifestyle choice that is affordable. Using the funds made from this erroneous tax to pay for smoking cessation programs and anti-teen smoking funds is also useless. Vaping is already a 18+ product, meaning that Hawaiians youth shouldn't be buying them anyway. Changing the age to 21 would cause no more than problems, causing a spike I the number of young smokes in Hawaii, seeing as they cannot vape. Electrnoic cigarettes are also smoking cessation products. Young people, who are over the age of 18 and using these products, are not smoking at all or smoking less than they used to. Taxing vaping products would cause these people to start smoking again, and only then would they need government funded programs to help them stop. This tax is only an excuse for the government to collect taxes, harm the people, and then use a mall portion of the money to "help" the people. Liquids that contain 0 nicotine should also not be taxed. As lawmakers are trying to say, anything with nicotine is a tobacco product. Using this logic, no mentally sound person could say that taxing 0mg electronic cigarettes would make sense. Raising the age of vaping to 21 is also ridiculous. A person of whom is 18, can serve their country, and is tried in court as an adult should not be restricted from the decision of weather or not to vape. The Hawaiian state government tries to say that this raise in age would cause less young people to start vaping and eventually smoking is ridiculous. If someone in the governments eyes is a legal adult, they should be able to make decisions as such. Lastly, vaping products being banned in areas where smoking is already banned is a sorry attempt to blob people from finding affordable solutions to their non health friendly smoking habit. Smoking an ecig at a bus stop, inside of a ecigarette shop, or at a beach should be something people can do. Vaping does not cause bad odors, second hand disease, or many of the cons of smoking in public. Ecigarettes were a huge hit because of the fact that they could use them where they couldn't smoke. Banning ecigarettes in



places where you cannot smoke would just drive more people to smoking rather than vaping. Banning and taxing ecigarettes and their accessories would only harm the public, and the state government of Hawaii to would be to blame.

Please note that testimony submitted less than 24 hours prior to the hearing, improperly identified, or directed to the incorrect office, may not be posted online or distributed to the committee prior to the convening of the public hearing.

Do not reply to this email. This inbox is not monitored. For assistance please email [webmaster@capitol.hawaii.gov](mailto:webmaster@capitol.hawaii.gov)

From: [mailinglist@capitol.hawaii.gov](mailto:mailinglist@capitol.hawaii.gov)  
To: [HTHTestimony](#)  
Cc: [brandon.n.roberts@gmail.com](mailto:brandon.n.roberts@gmail.com)  
Subject: Submitted testimony for SB299 on Feb 10, 2015 09:00AM  
Date: Sunday, February 08, 2015 12:44:11 PM

---

**SB299**

Submitted on: 2/8/2015

Testimony for HTH/CPN on Feb 10, 2015 09:00AM in Conference Room 229

| Submitted By    | Organization | Testifier Position | Present at Hearing |
|-----------------|--------------|--------------------|--------------------|
| Brandon Roberts | Individual   | Comments Only      | No                 |

Comments: It seems that today's society does not entirely understand "e-cigarettes." They seem to think that these vaporizers and other such devices are more dangerous than normal cigarettes when in actuality, cigarettes do contain many deadly toxins that are known and unknown, while a vaporizer has actually made me feel healthier by allowing me to breathe better while running. Now on the point of adding a 30% tax on all sales, is that not driving people away from the original point of a vaporizer, to help ween people off of nicotine, or at least offer in a way a safer alternative to getting nicotine. Now we see in some states where the legalization and taxation of marijuana has in some way helped the economy of that state, but it is not offering a safer alternative to smoking. As for what the state plans to do with all that extra money they would gain from increasing this tax, how is a program to keep minors from smoking going to stop them from smoking any more than they already do not. For years we have tried to tell young teens of the horrors of smoking, and guess what, being a normal American teen, they do it anyway, and it is not the state that will be able to change the mind of that teen, it is that teen's parent long before that child is a teen, who is the sole person who can stop said teen from being so rebellious, it is all about how the teen was brought up. Adding a tax to a 0mg nicotine product makes no sense when what you are trying to do is tax nicotine products. What is the point of raising the minimum age to buy electronic smoking devices unless you are in tandem going to raise the smoking age to 21 as well, that is making it an easier choice on the teen to just pick up smoking cigarettes. Sure electronic cigarettes can be banned in all the same places cigarette smoking is, but that should be left to the discretion of the land owner and the people who frequent the facility, not the state. We see it all too often that the government wants more control than they need. Pass responsibility down to the share holders and land owners, and the chance of the people being more happy exponentially increases.

Please note that testimony submitted less than 24 hours prior to the hearing, improperly identified, or directed to the incorrect office, may not be posted online or distributed to the committee prior to the convening of the public hearing.

Do not reply to this email. This inbox is not monitored. For assistance please email [webmaster@capitol.hawaii.gov](mailto:webmaster@capitol.hawaii.gov)



**From:** [mailinglist@capitol.hawaii.gov](mailto:mailinglist@capitol.hawaii.gov)  
**To:** [HTHTestimony](#)  
**Cc:** [antonchris10@gmail.com](mailto:antonchris10@gmail.com)  
**Subject:** Submitted testimony for SB299 on Feb 10, 2015 09:00AM  
**Date:** Friday, February 06, 2015 2:11:37 PM

---

**SB299**

Submitted on: 2/6/2015

Testimony for HTH/CPN on Feb 10, 2015 09:00AM in Conference Room 229

| <b>Submitted By</b> | <b>Organization</b> | <b>Testifier Position</b> | <b>Present at Hearing</b> |
|---------------------|---------------------|---------------------------|---------------------------|
| Chris Anton         | Individual          | Oppose                    | No                        |

Comments: Let's leave people that Vape alone.

Please note that testimony submitted less than 24 hours prior to the hearing, improperly identified, or directed to the incorrect office, may not be posted online or distributed to the committee prior to the convening of the public hearing.

Do not reply to this email. This inbox is not monitored. For assistance please email [webmaster@capitol.hawaii.gov](mailto:webmaster@capitol.hawaii.gov)

**From:** [mailinglist@capitol.hawaii.gov](mailto:mailinglist@capitol.hawaii.gov)  
**To:** [HTHTestimony](#)  
**Cc:** [protechoahu@gmail.com](mailto:protechoahu@gmail.com)  
**Subject:** \*Submitted testimony for SB299 on Feb 10, 2015 09:00AM\*  
**Date:** Friday, February 06, 2015 6:06:28 PM

---

**SB299**

Submitted on: 2/6/2015

Testimony for HTH/CPN on Feb 10, 2015 09:00AM in Conference Room 229

| <b>Submitted By</b> | <b>Organization</b> | <b>Testifier Position</b> | <b>Present at Hearing</b> |
|---------------------|---------------------|---------------------------|---------------------------|
| Clayton Silva       | Individual          | Oppose                    | No                        |

Comments:

Please note that testimony submitted less than 24 hours prior to the hearing, improperly identified, or directed to the incorrect office, may not be posted online or distributed to the committee prior to the convening of the public hearing.

Do not reply to this email. This inbox is not monitored. For assistance please email [webmaster@capitol.hawaii.gov](mailto:webmaster@capitol.hawaii.gov)

## Opposition of SB 299

Hello senators,

My name is Devin Wolery, I am the director of operations for PC Gamerz, eSports center and Vape Lounge.

A 30% tax on devices and eliquid is outrageous, as the devices are not a tobacco product and should not have a SIN tax associated with them. Eliquid comes in varieing levels of nicotine, with a lot of them 0mg.

By adding this tax to everything, it would force customers to buy products online, which would not have a tax. This would severly hurt local businesses.

With cigarettes you have a stamp system in place for taxing packs. With electronic smoking devices, because of the wide range of products and where they come from. Also the fact that most of them are copper pipes or can be made on a 3D printer. Would not be easy to tax.

A lot of the devices on the market now, have an independent battery which can be a flash light battery or an RC car battery.

The mods (battery tubes) are made from a copper pipe, a piece of wood, machined aluminum, altoids cans and many other things.

The attomizer is made from machined stainless steel or copper. These can be made at local machine shops.

Eliquid can be made by purchasing all ingredients from walmart.

As eliquid has 4 ingredients

- Propylene glycol (PG)
- Vegitable glycerin (VG)
- Food grade flavorings (suspended in PG)

FDA approved nicotine can be purchased online. With no documentation needed besides age verification.

So taxing everything will not be easy, it will also change rapidly. As the industry is constantly changing. A new item will release, and within 1-2 months, version 2 will be released.

The fact that the money is going towards tobacco prevention for youth. Which these devices and cigarettes are already illegal to purchase under 18. Is a waste of money. Kids will always do things that they are told they can not.

Having the money go towards cessation programs is another black hole. As it has been proven that electronic smoking devices have a higher success rate than those cessation programs. With less drastic or extreme side affects.

Having money go towards the cancer research fund is a problem. They are constatly asking for more money. They need to be AUDITED, they get money from the federal government each year. And what they say, is they want people to stop smoking. But that is not the case, because people have stopped. And now they are running out of money.

The state should look to Colorado and see how much extra money they have from what they do tax. If those programs truly do need the money.

If anything. Any tax money collected should go to PUBLIC SCHOOLS only. As furthering the youths education would be better than any of those programs.

Why is this bill singling out electronic vaping devices, by raising the age to buy them to 21. You say they are still a minor. But that is not true. As doing any crime after 18 will stay on your record and you will actually get punished for it. Instead of currently a slap on the wrist for under 18. If you are able to fight for your country and die for its freedoms, you should be able to choose what you want to do health wise that only truly affects you personally.

Vaping inside is currently banned in many businesses like:

- Movie Theaters
- Restaurants that choose to
- government buildings
- and many others

The ban on vaping can be taken care of with policy control under property management, rental agreements and other rules.

There does not need to be a LAW on it.

The second hand vapor has not been proven to be any more dangerous than being around exhaust fumes.

We want the individual business to choose to allow it or not.

We want to educate other vapers to be respectful of those policies and respectful of other people.

We want to educate you on the differences with this evolving industry and the old fashion cigarette industry.

These devices are not a tobacco product, if you are going to classify them. They should be a vape product.

I would like to schedule meetings with the senators to show examples in person to the main differences in the devices. And explain how they work and how they are changing.

Thank you for reading my testimony. See you on Tuesday

Devin Wolery  
Director of operations  
PC Gamerz, Inc.

From: [mailinglist@capitol.hawaii.gov](mailto:mailinglist@capitol.hawaii.gov)  
To: [HTHTestimony](#)  
Cc: [dankfor@hawaii.edu](mailto:dankfor@hawaii.edu)  
Subject: Submitted testimony for SB299 on Feb 10, 2015 09:00AM  
Date: Monday, February 09, 2015 2:03:47 PM

---

## **SB299**

Submitted on: 2/9/2015

Testimony for HTH/CPN on Feb 10, 2015 09:00AM in Conference Room 229

| <b>Submitted By</b> | <b>Organization</b> | <b>Testifier Position</b> | <b>Present at Hearing</b> |
|---------------------|---------------------|---------------------------|---------------------------|
| Dominick Lankford   | Individual          | Oppose                    | No                        |

Comments: If you were to heighten the prices of bottles of eliquid and label it a "tobacco" product, that will bring more negative change compared to the positive changes you believe you'll be creating. When it comes to vaping and e-liquid in general, nicotine levels are mostly produced with the product. if you increase the tax on these bottles, which in turn would increase the prices of the bottles, what will stop customers and fellow vapers from buying their own bottle of nicotine and adding it to their on juice to vape? Not only is it unsafe, but can cause a huge amount of issues to occur in the future. You'll ultimately create a black market for pre-mixed bottles of e-liquid and instead of regulating it, you'll make it blow more out of proportion than you originally thought. On top of all of this, nicotine isn't what makes Tobacco producs poisonous or addicting either. Yes, nicotine is addicting, but what makes cigarettes addicting isn't the nicotine but it's the other 4,000+ other poisons and chemicals that the tobacco companies mix into the cigarettes which makes them even MORE addicting. THAT is what's killing us. Vaping is not only a huge change for the smoking "culture" but also a huge change in lifestyle when you quit smoking cigarettes. Vaping allows people to live longer (compared to smoking cigs which is 100x less healthy for the human body), stay active without the strain on their bodies, change their lifestyles and ultimately help the environment. In my book, vaping is safer, better, and cleaner than a normal cigarette and if you guys take that away, I will fall straight back into the habit of smoking because there is no other alternative that I'd be able to take with the small paycheck that I have. I work 3 days a week at \$7.50/hour. I barely have enough money to pay for my bills... when I was smoking, I would literally have no money at the end of every paycheck. with vaping, I was able to keep my costs low, smoke when I wanted and even change the flavors to things I'm allergic to... do you know how good that feels? to be able to smoke and taste something I'm not even able to eat? maybe you should ask a diabetic, because vaping can give that sensation to them as well... Vaping is all around better for everyone and the environment. Stop thinking about money for once and think about the people.. we're the future; and right now, you're killing us.. I oppose this bill against vaping.. It's completely ludicrous.

Please note that testimony submitted less than 24 hours prior to the hearing, improperly identified, or directed to the incorrect office, may not be posted online or



distributed to the committee prior to the convening of the public hearing.

Do not reply to this email. This inbox is not monitored. For assistance please email [webmaster@capitol.hawaii.gov](mailto:webmaster@capitol.hawaii.gov)

**From:** [mailinglist@capitol.hawaii.gov](mailto:mailinglist@capitol.hawaii.gov)  
**To:** [HTHTestimony](#)  
**Cc:** [ericbihag@gmail.com](mailto:ericbihag@gmail.com)  
**Subject:** Submitted testimony for SB299 on Feb 10, 2015 09:00AM  
**Date:** Monday, February 09, 2015 4:41:44 PM

---

**SB299**

Submitted on: 2/9/2015

Testimony for HTH/CPN on Feb 10, 2015 09:00AM in Conference Room 229

| <b>Submitted By</b> | <b>Organization</b> | <b>Testifier Position</b> | <b>Present at Hearing</b> |
|---------------------|---------------------|---------------------------|---------------------------|
| Eric Bihag          | Individual          | Oppose                    | No                        |

Comments: Electronic cigarettes has been a healthier alternative than regular cigarettes for smokers. No tar, yellow teeth, bad breath and cancer thus far. Further more there are more test being done to make it a whole lot better. We respectfully request to do away with the taxation. If taxation is paramount, then only suggestion I'd make is to tax the nicotine levels by lower percentages than cigarettes to maybe 5%, 10% but no more than 15%. Please consider and accept this innovated change to smoking. Thank you EB

Please note that testimony submitted less than 24 hours prior to the hearing, improperly identified, or directed to the incorrect office, may not be posted online or distributed to the committee prior to the convening of the public hearing.

Do not reply to this email. This inbox is not monitored. For assistance please email [webmaster@capitol.hawaii.gov](mailto:webmaster@capitol.hawaii.gov)

**From:** [mailinglist@capitol.hawaii.gov](mailto:mailinglist@capitol.hawaii.gov)  
**To:** [HTHTestimony](#)  
**Cc:** [jjw333333@gmail.com](mailto:jjw333333@gmail.com)  
**Subject:** \*Submitted testimony for SB299 on Feb 10, 2015 09:00AM\*  
**Date:** Thursday, February 05, 2015 2:53:11 PM

---

**SB299**

Submitted on: 2/5/2015

Testimony for HTH/CPN on Feb 10, 2015 09:00AM in Conference Room 229

| <b>Submitted By</b> | <b>Organization</b> | <b>Testifier Position</b> | <b>Present at Hearing</b> |
|---------------------|---------------------|---------------------------|---------------------------|
| Jake J. Watkins     | Individual          | Oppose                    | No                        |

Comments:

Please note that testimony submitted less than 24 hours prior to the hearing, improperly identified, or directed to the incorrect office, may not be posted online or distributed to the committee prior to the convening of the public hearing.

Do not reply to this email. This inbox is not monitored. For assistance please email [webmaster@capitol.hawaii.gov](mailto:webmaster@capitol.hawaii.gov)

From: [mailinglist@capitol.hawaii.gov](mailto:mailinglist@capitol.hawaii.gov)  
To: [HTHTestimony](#)  
Cc: [jaren\\_ildefonzo@yahoo.com](mailto:jaren_ildefonzo@yahoo.com)  
Subject: Submitted testimony for SB299 on Feb 10, 2015 09:00AM  
Date: Saturday, February 07, 2015 11:41:42 PM

---

**SB299**

Submitted on: 2/7/2015

Testimony for HTH/CPN on Feb 10, 2015 09:00AM in Conference Room 229

| Submitted By    | Organization | Testifier Position | Present at Hearing |
|-----------------|--------------|--------------------|--------------------|
| Jaren Ildefonzo | Individual   | Oppose             | No                 |

Comments: Vaping has changed the world for me and for many other people, and I think that it is really dumb on what the state is trying to do to people who vape. First of all, how can they put a 30% SIN tax to vaping products? That is just insane if you ask me. With that being said, I probably will go back to smoking cigarettes because of the increase, I was once a daily smoker and it really affected my life negatively. My health just went down from there. I couldnt wrong for periods of time and it got worse. I would get tired from walking for about 10 minutes and would need a break to catch my breath, how sad is that? Do you want everyone else to be like that? Or to go back to that lifestyle? I think not. Second, I think it is outrageous on how the money from the SIN tax will go towards tobacco prevention. Why would they use the money for that if the money came from non tobacco users? It makes no sense on how the state is trying to make excuses in order to make money off of us and to use it for something that was non related. People went to e-cigarettes for a reason people! Vaping has had me stop smoking tobacco and so did my dad, he was a pack a day smoker and has been smoking ever since high school, he started vaping a year ago and now doesnt even use his e-cig1 How amazing is that? From just an ecig, my dad quit smoking completely. Wouldnt that be wonderful if that happened to everyone? Everyones health will increase and get better. But how can that happen if the state decides to raise the tax? The state is preventing something good happening to peoples lives! I also read that there is a chance of the state to tax non nicotine liquids, how dare they! You cannot label eliquid as a tobacco product if it does not even contain it! If they also decide to refuse to sell ecigs to people younger than 21, how can they start vaping early to stop smoking earlier and to prevent later health problems. In all honesty, there ia a time and place to vape. But since they do not produce any horrid smell and do not cause second hand smoke, how can it affect anyone around them? So many questions to be answered right? Vaping is life, and it is the future. Please do not raise the taxes and cause more problems to the community. Trust us, vaping will benefit billions of people.

Please note that testimony submitted less than 24 hours prior to the hearing, improperly identified, or directed to the incorrect office, may not be posted online or distributed to the committee prior to the convening of the public hearing.

Do not reply to this email. This inbox is not monitored. For assistance please email [webmaster@capitol.hawaii.gov](mailto:webmaster@capitol.hawaii.gov)

**From:** [mailinglist@capitol.hawaii.gov](mailto:mailinglist@capitol.hawaii.gov)  
**To:** [HTHTestimony](#)  
**Cc:** [jen.harvey.81@gmail.com](mailto:jen.harvey.81@gmail.com)  
**Subject:** Submitted testimony for SB299 on Feb 10, 2015 09:00AM  
**Date:** Tuesday, February 03, 2015 10:38:10 PM

---

**SB299**

Submitted on: 2/3/2015

Testimony for HTH/CPN on Feb 10, 2015 09:00AM in Conference Room 229

| <b>Submitted By</b>    | <b>Organization</b> | <b>Testifier Position</b> | <b>Present at Hearing</b> |
|------------------------|---------------------|---------------------------|---------------------------|
| Jennifer Nill, BSN, RN | Individual          | Support                   | No                        |

Comments: These devices are harmful, easily accessible, and allow for discrete ingestion of many substances. I support this bill.

Please note that testimony submitted less than 24 hours prior to the hearing, improperly identified, or directed to the incorrect office, may not be posted online or distributed to the committee prior to the convening of the public hearing.

Do not reply to this email. This inbox is not monitored. For assistance please email [webmaster@capitol.hawaii.gov](mailto:webmaster@capitol.hawaii.gov)

**From:** [mailinglist@capitol.hawaii.gov](mailto:mailinglist@capitol.hawaii.gov)  
**To:** [HTHTestimony](#)  
**Cc:** [jchangworld@gmail.com](mailto:jchangworld@gmail.com)  
**Subject:** \*Submitted testimony for SB299 on Feb 10, 2015 09:00AM\*  
**Date:** Friday, February 06, 2015 10:38:24 AM

---

**SB299**

Submitted on: 2/6/2015

Testimony for HTH/CPN on Feb 10, 2015 09:00AM in Conference Room 229

| <b>Submitted By</b> | <b>Organization</b> | <b>Testifier Position</b> | <b>Present at Hearing</b> |
|---------------------|---------------------|---------------------------|---------------------------|
| Jessica Chang       | Individual          | Oppose                    | No                        |

Comments:

Please note that testimony submitted less than 24 hours prior to the hearing, improperly identified, or directed to the incorrect office, may not be posted online or distributed to the committee prior to the convening of the public hearing.

Do not reply to this email. This inbox is not monitored. For assistance please email [webmaster@capitol.hawaii.gov](mailto:webmaster@capitol.hawaii.gov)

# SB299 Opposition Testimony

Justin Wolery  
PC Gamerz, Inc.  
99-082 Kauhale Street #B1  
Aiea, HI 96826  
(808) 348-1636

I am writing in opposition of SB 299 for the following reasons:

1. The proposed 30% Tax on Vaping products (kits, liquids etc) would make already expensive vaping products much more costly for those looking for a safe alternative to smoking. Many people would be forced due to financial constraints to go back to smoking deadly, poisonous cigarettes rather than being able to afford to purchase and maintain the sort of high performance vaping devices that provide the highest success rate at keeping heavy smokers away from deadly tobacco products.
2. The equation of vaping and electronic cigarette devices with tobacco products and the term “Electronic Smoking device” itself is inherently nonsensical. There is no “smoke” involved in the act of vaping and there are no dangerous chemicals present when vaping devices are used properly and are well maintained (note that making products more expensive will inevitably force people to use atomizers and replacement coils long beyond their intended life resulting in more improper use and improper maintenance.)
3. I Vehemently disagree with the premise that vaping should be considered as dangerous as smoking and should be taxed to fund INEFFECTIVE smoking cessation programs that have shown to fail for over 90% of the people that try them (ie nicotine gum, patches, nicotine inhalers – which ironically are basically poorly performing and tasting vaping devices). I have seen no convincing evidence that Tobacco Prevention and Control Fund programs have been at all effective in reducing smoking with teens or adults with anywhere near the degree of success that vaping devices have.
4. I am strongly opposed to the idea of raising the legal vaping AND smoking age to 21, a person who is 18 years old is legally an adult and you have no right to tell them what they can and cannot do with their own bodies. If a person is old enough to join the military and die for their country – they are old enough to make their own decisions about their health. I know from experience that telling a young adult they CANNOT do something is the most sure fire way to get the to do that very thing just to spite you and this will likely have the opposite of the intended effect – thus increasing smoking among young people much like young college age kids irresponsibly binge drink.
5. Banning Vaping everywhere smoking is banned is a silly, unenforceable notion. There has been no convincing scientific evidence that first, or second hand vapor inhalation is anywhere near as dangerous or deadly as cigarette smoke. Drexel university did a study involving over 800 participants vaping in an enclosed room along with a control group simply breathing normally – surprisingly they found the air quality was actually BETTER in the room where people were vaping due to the anti-microbial nature of PG vapor (this is why hospitals often pump PG into their ventilation systems to help control the spread of disease). Many business already prohibit the use of vaping devices in their buildings and these policies are largely respected by the vaping community. However business who want to cater to the vaping demographic should not be prohibited from doing so as their really is NO HEALTH



RISK to others.

Thank you for taking the time to read my comments.

**From:** [mailinglist@capitol.hawaii.gov](mailto:mailinglist@capitol.hawaii.gov)  
**To:** [HTHTestimony](#)  
**Cc:** [kathyk323@hotmail.com](mailto:kathyk323@hotmail.com)  
**Subject:** Submitted testimony for SB299 on Feb 10, 2015 09:00AM  
**Date:** Saturday, February 07, 2015 4:21:38 PM

---

**SB299**

Submitted on: 2/7/2015

Testimony for HTH/CPN on Feb 10, 2015 09:00AM in Conference Room 229

| <b>Submitted By</b> | <b>Organization</b> | <b>Testifier Position</b> | <b>Present at Hearing</b> |
|---------------------|---------------------|---------------------------|---------------------------|
| Kathy Kim           | Individual          | Oppose                    | No                        |

Comments: Why can't people use these products to quit?!?!

Please note that testimony submitted less than 24 hours prior to the hearing, improperly identified, or directed to the incorrect office, may not be posted online or distributed to the committee prior to the convening of the public hearing.

Do not reply to this email. This inbox is not monitored. For assistance please email [webmaster@capitol.hawaii.gov](mailto:webmaster@capitol.hawaii.gov)

**From:** [mailinglist@capitol.hawaii.gov](mailto:mailinglist@capitol.hawaii.gov)  
**To:** [HTHTestimony](#)  
**Cc:** [pipelinemax@outlook.com](mailto:pipelinemax@outlook.com)  
**Subject:** \*Submitted testimony for SB299 on Feb 10, 2015 09:00AM\*  
**Date:** Monday, February 09, 2015 2:54:18 PM

---

**SB299**

Submitted on: 2/9/2015

Testimony for HTH/CPN on Feb 10, 2015 09:00AM in Conference Room 229

| <b>Submitted By</b> | <b>Organization</b> | <b>Testifier Position</b> | <b>Present at Hearing</b> |
|---------------------|---------------------|---------------------------|---------------------------|
| Kimo Cruz           | Individual          | Oppose                    | No                        |

Comments:

Please note that testimony submitted less than 24 hours prior to the hearing, improperly identified, or directed to the incorrect office, may not be posted online or distributed to the committee prior to the convening of the public hearing.

Do not reply to this email. This inbox is not monitored. For assistance please email [webmaster@capitol.hawaii.gov](mailto:webmaster@capitol.hawaii.gov)

**From:** [mailinglist@capitol.hawaii.gov](mailto:mailinglist@capitol.hawaii.gov)  
**To:** [HTHTestimony](#)  
**Cc:** [kmaluod@yahoo.com](mailto:kmaluod@yahoo.com)  
**Subject:** Submitted testimony for SB299 on Feb 10, 2015 09:00AM  
**Date:** Saturday, February 07, 2015 11:24:15 PM

---

**SB299**

Submitted on: 2/7/2015

Testimony for HTH/CPN on Feb 10, 2015 09:00AM in Conference Room 229

| <b>Submitted By</b> | <b>Organization</b> | <b>Testifier Position</b> | <b>Present at Hearing</b> |
|---------------------|---------------------|---------------------------|---------------------------|
| kyle                | Individual          | Oppose                    | No                        |

Comments: I believe that taxing 30% on e cigarette products is completely detrimental to stopping the youth from "smoking". The biggest appeal to vaping is that its cheaper than cigarettes and healthier. If there is a huge tax on vaping. More and more people are gonna revert back to smoking, and kids who are already obtaining these devices are gonna start smoking instead. Which in my opinion is way worse. The taxes coming from this, I believe are not gonna help towards stopping underage smoking. Smoking companies are already making enough money as it is, this will only feed these companies because more people will be buying cigarettes. And people wont be able to afford e cigs that will now be more expensive than smoking. 0 nicotine bottles of e juice should not be taxed, if the whole reason for taxing this is to stop kids from using nicotine, if they do decide to vape, at least they have an accessible form which does not contain the drug. The smoking age in Hawaii has been 18 for as long as I can remember, if someone has to be 21 to buy e cigs and accessories, it gives people even more of a reason to buy regular cigarettes, Which are worse I believe that vaping in public places should not be banned. Vaping eliminates secondhand smoking, odor, and doesn't bother people with asthma. These are multiple reasons why smoking is banned in public places, and most people don't know these facts.

Please note that testimony submitted less than 24 hours prior to the hearing, improperly identified, or directed to the incorrect office, may not be posted online or distributed to the committee prior to the convening of the public hearing.

Do not reply to this email. This inbox is not monitored. For assistance please email [webmaster@capitol.hawaii.gov](mailto:webmaster@capitol.hawaii.gov)

**From:** [mailinglist@capitol.hawaii.gov](mailto:mailinglist@capitol.hawaii.gov)  
**To:** [HTHTestimony](#)  
**Cc:** [laurie\\_roza@yahoo.com](mailto:laurie_roza@yahoo.com)  
**Subject:** Submitted testimony for SB299 on Feb 10, 2015 09:00AM  
**Date:** Monday, February 09, 2015 1:54:44 PM

---

**SB299**

Submitted on: 2/9/2015

Testimony for HTH/CPN on Feb 10, 2015 09:00AM in Conference Room 229

| <b>Submitted By</b> | <b>Organization</b> | <b>Testifier Position</b> | <b>Present at Hearing</b> |
|---------------------|---------------------|---------------------------|---------------------------|
| laurie roza         | Individual          | Oppose                    | No                        |

Comments: I had been a smoker for 20+ years. I did not want to die from smoking cigarettes but noticed a serious decline in my health. I tried everything on the market to quit but nothing worked... Until I was introduced to electronic cigarettes. I was finally able to quit. I can tell you, within a week I could breathe better, I no longer hacked up phlegm, no longer woke up coughing all night and in general felt better than I had in decades! I have now been smoke free 3 1/2 years! Please do not pass this bill. This will make it too expensive for many of us and too many people will suffer. Thank you for your time.

Please note that testimony submitted less than 24 hours prior to the hearing, improperly identified, or directed to the incorrect office, may not be posted online or distributed to the committee prior to the convening of the public hearing.

Do not reply to this email. This inbox is not monitored. For assistance please email [webmaster@capitol.hawaii.gov](mailto:webmaster@capitol.hawaii.gov)

**From:** [mailinglist@capitol.hawaii.gov](mailto:mailinglist@capitol.hawaii.gov)  
**To:** [HTHTestimony](#)  
**Cc:** [lisayoshiro@gmail.com](mailto:lisayoshiro@gmail.com)  
**Subject:** \*Submitted testimony for SB299 on Feb 10, 2015 09:00AM\*  
**Date:** Sunday, February 08, 2015 1:11:14 PM

---

**SB299**

Submitted on: 2/8/2015

Testimony for HTH/CPN on Feb 10, 2015 09:00AM in Conference Room 229

| <b>Submitted By</b> | <b>Organization</b> | <b>Testifier Position</b> | <b>Present at Hearing</b> |
|---------------------|---------------------|---------------------------|---------------------------|
| Lisa Oshiro         | Individual          | Oppose                    | No                        |

Comments:

Please note that testimony submitted less than 24 hours prior to the hearing, improperly identified, or directed to the incorrect office, may not be posted online or distributed to the committee prior to the convening of the public hearing.

Do not reply to this email. This inbox is not monitored. For assistance please email [webmaster@capitol.hawaii.gov](mailto:webmaster@capitol.hawaii.gov)

**From:** [mailinglist@capitol.hawaii.gov](mailto:mailinglist@capitol.hawaii.gov)  
**To:** [HTHTestimony](#)  
**Cc:** [rrphawaii@aol.com](mailto:rrphawaii@aol.com)  
**Subject:** Submitted testimony for SB299 on Feb 10, 2015 09:00AM  
**Date:** Monday, February 09, 2015 1:18:08 PM

---

**SB299**

Submitted on: 2/9/2015

Testimony for HTH/CPN on Feb 10, 2015 09:00AM in Conference Room 229

| <b>Submitted By</b> | <b>Organization</b> | <b>Testifier Position</b> | <b>Present at Hearing</b> |
|---------------------|---------------------|---------------------------|---------------------------|
| Mariner Revell      | Individual          | Oppose                    | No                        |

Comments: Where is the proven scientific evidence that shows ecig products cause harm as cigarettes do? What tests have been done by Josh Green or any other state rep? This is unfair and unjustified! The FDA has not come out with any proven evidence that shows ecig products to be harmful. The us Surgeon General has warned local governments about this kind of ecig which hunt! Show us proven scientific results to justify the further taxation of these products! If nicotine is such a demon why is caffeine not?

Please note that testimony submitted less than 24 hours prior to the hearing, improperly identified, or directed to the incorrect office, may not be posted online or distributed to the committee prior to the convening of the public hearing.

Do not reply to this email. This inbox is not monitored. For assistance please email [webmaster@capitol.hawaii.gov](mailto:webmaster@capitol.hawaii.gov)

**From:** [mailinglist@capitol.hawaii.gov](mailto:mailinglist@capitol.hawaii.gov)  
**To:** [HTHTestimony](#)  
**Cc:** [1hawaii4me@gmail.com](mailto:1hawaii4me@gmail.com)  
**Subject:** \*Submitted testimony for SB299 on Feb 10, 2015 09:00AM\*  
**Date:** Saturday, February 07, 2015 5:34:25 PM

---

**SB299**

Submitted on: 2/7/2015

Testimony for HTH/CPN on Feb 10, 2015 09:00AM in Conference Room 229

| <b>Submitted By</b> | <b>Organization</b> | <b>Testifier Position</b> | <b>Present at Hearing</b> |
|---------------------|---------------------|---------------------------|---------------------------|
| Mark Dietrich       | Individual          | Oppose                    | No                        |

Comments:

Please note that testimony submitted less than 24 hours prior to the hearing, improperly identified, or directed to the incorrect office, may not be posted online or distributed to the committee prior to the convening of the public hearing.

Do not reply to this email. This inbox is not monitored. For assistance please email [webmaster@capitol.hawaii.gov](mailto:webmaster@capitol.hawaii.gov)



**From:** [mailinglist@capitol.hawaii.gov](mailto:mailinglist@capitol.hawaii.gov)  
**To:** [HTHTestimony](#)  
**Cc:** [fullmetaldakine@gmail.com](mailto:fullmetaldakine@gmail.com)  
**Subject:** Submitted testimony for SB299 on Feb 10, 2015 09:00AM  
**Date:** Saturday, February 07, 2015 11:20:39 PM  
**Attachments:** [Untitled 1.odt](#)

---

**SB299**

Submitted on: 2/7/2015

Testimony for HTH/CPN on Feb 10, 2015 09:00AM in Conference Room 229

| <b>Submitted By</b> | <b>Organization</b> | <b>Testifier Position</b> | <b>Present at Hearing</b> |
|---------------------|---------------------|---------------------------|---------------------------|
| Matt                | Individual          | Comments Only             | No                        |

Comments: I think the 30% SIN tax to vaping products is ridiculous! It would be so much more difficult to live and enjoy my healthier vaping lifestyle. I also think the whole idea of the SIN tax money going towards tobacco prevention and teen smoking prevention is stupid! Purchasing any vaping products already requires the customer to be of age (18). I feel that the SIN tax should not be placed on 0mg liquids because it doesn't contain any nicotine nor tobacco for that matter. If it was enforced that way, people would probably buy their own nicotine drops and try to create the own mixed liquids. That could very well lead to injury or death considering they wouldn't know to properly do it. Do you want to be responsible for endangering the lives of innocent people? In summary, the SIN tax is stupid and wrong. Its not even "tobacco" as the government is referring to it as. I probably, along with many other people, will resort to buying vaping products some other way; like online because its cheaper. This will lead to many businesses losing business, adding to the already falling economy we have here in Hawaii. E-cigs changed my life for the better, and now the government wants to take that away from me. Another thing the government wants to take away from me, adding the endless list things there are already taking form the people. The SIN tax sucks, it's ridiculous and stupid. Please don't do it. Thanks for listening, every voice counts. Vape is LIFE!!!

Please note that testimony submitted less than 24 hours prior to the hearing, improperly identified, or directed to the incorrect office, may not be posted online or distributed to the committee prior to the convening of the public hearing.

Do not reply to this email. This inbox is not monitored. For assistance please email [webmaster@capitol.hawaii.gov](mailto:webmaster@capitol.hawaii.gov)

**From:** [subohmvapes.llc@gmail.com](mailto:subohmvapes.llc@gmail.com)  
**To:** [HTHTestimony](#)  
**Subject:** Oppose bill 299 and 1030  
**Date:** Monday, February 09, 2015 3:32:00 PM

---

Aloha Senators Green and Ruderman,

I am a small business owner here in Kona. I am in opposition of proposed SB299 and SB 1030. Nicotine is not the cause of cancer. Nicotine is not tobacco. Nicotine is derived from the family of nightshades plants. Nicotine is found in many edible plants such as potatoes, tomatoes, eggplants, bell peppers and peppers. Nicotine is a stimulant just like caffeine is a stimulant. Cigarettes have other ingredients in them besides the nicotine found in the leaves of tobacco.

I opened this business because of my successful cessation of cigarettes through the use of vaporizers. Applying a tax equal to 30% of wholesale on electronic smoking devices, kits or components containing nicotine will deter the use of these methods to quit smoking. People have already mentioned in my establishment that they will just go back to smoking cigarettes. Studies have been very vague thus far as to whether "Vaping" is hazardous to health or not. Studies have not been conducted with proper controls or without bias either. For me I am in the vapor business to help people quit smoking and stay away from cigarettes. This year has only begun and I have been able to assist at least 10 more people with the cessation of smoking cigarettes. I implore you to reconsider the SB299 and the repercussions it will have on all who are trying to quit smoking and all who use vaporizing as a method of not smoking tobacco. Please oppose SB299, we don't want more tobacco smokers.

As for SB1030, I am opposed to this bill greatly. A person of 18 years of age has the right to vote and enter any branch of the United States military. This person of 18 years of age is responsible enough to make two very important decisions by law and is known to be an "adult" at this age. Why should this person not be allowed to make another adult decision such as to use "electronic smoking devices" or tobacco? I come from a military family, my father is a retired E8 Army Master Sargent and I am married to a retired E7 Special Forces Green Barrett Sargent. We hold our freedoms close! Being an adult and enlisting to fight for your country is a very important decision young men and women make every day. They choose to give their lives in the service of our country so they should be able to choose to use vaporizers or tobacco products if they want to. Any 18 year old is legally an adult. Adults are able to make personal life decisions, this is our American freedom!

Mahalo,  
Michelle Johnston  
Sub Ohm Vapes, LLC  
74-5543 Kaiwi St. Ste. A135  
Kailua-Kona, HI 96740  
cell: 808-265-7384  
phone: 808-238-5912  
Sent from my iPad

**From:** [mailinglist@capitol.hawaii.gov](mailto:mailinglist@capitol.hawaii.gov)  
**To:** [HTHTestimony](#)  
**Cc:** [wintersnicholas@rocketmail.com](mailto:wintersnicholas@rocketmail.com)  
**Subject:** \*Submitted testimony for SB299 on Feb 10, 2015 09:00AM\*  
**Date:** Friday, February 06, 2015 5:46:56 PM

---

**SB299**

Submitted on: 2/6/2015

Testimony for HTH/CPN on Feb 10, 2015 09:00AM in Conference Room 229

| <b>Submitted By</b> | <b>Organization</b> | <b>Testifier Position</b> | <b>Present at Hearing</b> |
|---------------------|---------------------|---------------------------|---------------------------|
| Nicholas Winters    | Individual          | Oppose                    | Yes                       |

Comments:

Please note that testimony submitted less than 24 hours prior to the hearing, improperly identified, or directed to the incorrect office, may not be posted online or distributed to the committee prior to the convening of the public hearing.

Do not reply to this email. This inbox is not monitored. For assistance please email [webmaster@capitol.hawaii.gov](mailto:webmaster@capitol.hawaii.gov)



# UNIVERSITY OF HAWAII SYSTEM

## Legislative Testimony

---

Written Testimony Presented Before the  
Senate Committee on Health  
And  
Senate Committee on Commerce and Consumer Protection  
February 10, 2015 at 9:00 am  
By  
Robert Bley-Vroman, Chancellor  
and  
Jerris Hedges, MD, MS, MMM  
Dean, John A. Burns School of Medicine  
Interim Director, University of Hawai'i Cancer Center  
University of Hawai'i at Mānoa

### SB 299 – RELATING TO ELECTRONIC SMOKING DEVICES

Chairs Green and Baker, Vice Chairs Wakai and Taniguchi, and Members of the Committees:

The University of Hawai'i Cancer Center supports this bill.

The UH Cancer Center is one of only 68 institutions in the U.S. that hold the prestigious National Cancer Institute (NCI) designation, and is the only NCI-designated center in the Pacific. The NCI designation provides greater access to federal funding and research opportunities. More importantly, it gives the people of Hawai'i and the Pacific region access to innovative and potentially life-saving clinical trials without the necessity of traveling to the mainland.

Our passion at the UH Cancer Center is to be a world leader in eliminating cancer through research, education and improved patient care. Because tobacco consumption is a leading preventable cause of cancer, we take all issues related to tobacco in Hawai'i very seriously. Whereas the UH Cancer Center always has supported strong tobacco control measures in Hawai'i, the recent emergence of electronic smoking devices presents new challenges for tobacco control and tobacco-related legislation.

The UH Cancer Center perspective on electronic smoking devices is informed by data recently obtained from Hawai'i adolescents and young adults who are participants in **original research conducted by our own faculty**. Research conducted in Hawai'i high schools by Thomas Wills, PhD, has confirmed that rates of e-cigarette use by Hawai'i adolescents are at least double the rate of e-cigarette use observed in studies of mainland adolescents. Furthermore, his study published in the peer-reviewed journal *Pediatrics* clarified a reason why e-cigarette use is growing nationally among teens, as his data suggest that e-cigarettes may be operating to recruit lower-risk adolescents to smoking. And recently Pallav Pokhrel, PhD, and Thaddeus Herzog, PhD, published

on the topic of e-cigarettes and motivation to quit smoking. Drs. Pokhrel and Herzog also assessed differences between smokers who used e-cigarettes to quit versus those who used FDA-approved nicotine replacement therapy. Additionally, these researchers have published on the effects of e-cigarette marketing on harm perceptions, as well as e-cigarette use expectancies and their impact on e-cigarette use among young adults.

**This research is vital to gaining an evidence-based understanding of what drives acceptance of this emerging technology, what users believe regarding its safety, and what the consequences are for adolescents, whose brains are particularly susceptible to nicotine.**

We support the excise tax on electronic smoking devices, as well as the prohibition of the sale of electronic smoking devices to minors. Despite the complexities of the larger debate regarding electronic smoking devices, we believe this bill represents reasonable legislation that balances the rights of adults to use electronic smoking devices in appropriate venues while restricting use in public places where conventional cigarettes are banned.

As scientific research on electronic smoking devices progresses, we will have a stronger basis to adjust laws according to evidence. At the present time, however, caution is warranted. As others have noted, the FDA currently does not regulate e-cigarettes, and thus the consumer has no assurances regarding e-cigarette ingredients. Further, because of the novelty of e-cigarettes, the long term effects of using these devices are unknown. A further concern, not often discussed, is the potential for electronic smoking devices to be used as drug delivery devices for substances other than nicotine.

**We request that a portion of the proceeds generated from the tax on electronic smoking devices be directed to the Hawai'i cancer research special fund.** This would enable the UH Cancer Center to continue the important research begun by our faculty, and continue in our ongoing efforts toward smoking prevention to reduce the incidence of cancer.

We respectfully urge you to pass this bill.

From: [mailinglist@capitol.hawaii.gov](mailto:mailinglist@capitol.hawaii.gov)  
To: [HTHTestimony](#)  
Cc: [santarsiero.rusty@yahoo.com](mailto:santarsiero.rusty@yahoo.com)  
Subject: Submitted testimony for SB299 on Feb 10, 2015 09:00AM  
Date: Saturday, February 07, 2015 11:31:48 PM

---

**SB299**

Submitted on: 2/7/2015

Testimony for HTH/CPN on Feb 10, 2015 09:00AM in Conference Room 229

| Submitted By        | Organization | Testifier Position | Present at Hearing |
|---------------------|--------------|--------------------|--------------------|
| Russell Santarsiero | Individual   | Oppose             | No                 |

Comments: SB299 Honestly, a 30% SIN tax on vaping products would cause me to start buying the products online. The increase would not make me revert back to cigarettes/cigars, due to the fact that to me cigarettes/ cigars are in worse for me, and they taste worse. Electronic cigarettes are already illegal to purchase under the age of 18, the same age as traditional cigarettes, so why up the age for electronic cigarettes when traditional cigarettes are more easily available? I switched from cigars myself to vaping, and in that time, whenever I want to puff on a cigar, I simply grab my vape and puff on 0mg, with delicious flavors. If this bill does pass, I hope that the money that I would be paying in taxes would actually be going to help keep people from smoking, instead of lining the pockets off the greedy. So I would hope that you would audit the special funds programs that would be getting the money. I dont think that 0mg products such as devices and Eliquid should be taxed in the first place, due to the fact that they do not contain nicotine. Buy doing that you make it harder for those who only smoke 0mg to keep smoking 0mg. Why is it that only Electronic smoking devices are the ones that are being singled out for an age increase for purchasing? By making Electronic smoking devices have a higher purchasing age, you make it so that they move to traditional cigarettes, which is still 18. I dont think that banning vapor products everywhere smoking is already banned is the answer. Most places already have a ban on vaping indoors already, but others dont, so why make it so that everybody has to?

Please note that testimony submitted less than 24 hours prior to the hearing, improperly identified, or directed to the incorrect office, may not be posted online or distributed to the committee prior to the convening of the public hearing.

Do not reply to this email. This inbox is not monitored. For assistance please email [webmaster@capitol.hawaii.gov](mailto:webmaster@capitol.hawaii.gov)



February 9, 2015

To: The Honorable Rosalyn H. Baker, Chair Members, Senate  
Committee on Commerce and Consumer Protection

From: Scott Rasak, VOLCANO Fine Electronic Cigarettes® Vice  
President

**RE: SB299 – oppose.**

Thank you for the opportunity to submit testimony.

VOLCANO Fine Electronic Cigarettes® is the largest manufacturer and retailer of vapor products and vaping accessories in the State of Hawaii. We currently own and operate 11 locations statewide and employ over 100 full-time workers to support sales of our products not only here in Hawaii, but to all 50 states as well as Japan and the UK. We stand in opposition to SB299 for the following:

- SB299 Establishes an excise tax on electronic smoking devices equal to 30 per cent of the wholesale price of each electronic smoking device kit, electronic smoking device nicotine cartridge, or electronic smoking device nicotine refill sold, used, or possessed by a wholesaler or dealer on or after January 1, 2016. Allocates taxes collected to the Hawaii tobacco prevention and control trust fund, to be used for smoking cessation programs in Hawaii, with an emphasis on teen smoking prevention and cessation programs. Amends Hawaii's anti-smoking statute to prohibit the use of electronic smoking devices in places open to the public and other specified locations. Prohibits the sale or furnishing of electronic smoking devices to a minor under twenty-one years of age. Prohibits minors under twenty-one years of age from purchasing electronic smoking devices.
- The average cost for an industry standard bottle of e-liquid that

contains nicotine is \$13 and is already higher than the cost of a pack of cigarettes. When you factor in the average cost of a reusable starter kit, which can range anywhere from \$45 to more than \$300 for a premium device, and the accessories one must regularly purchase to keep their device in normal working order, users are already paying a comparable or higher price than they would be if they were using a traditional tobacco product. Even most one-time use electronic cigarettes are priced comparably to a traditional pack of cigarettes and provide a user a comparable amount of puffs. Yet in many instances, users choose a much lower dose of nicotine than you would ever get from a cigarette and this bill does not make any distinction in that regard.

- Some smokers are already hesitant to try electronic cigarettes due to the high start-up costs involved. Levying 30% taxes on electronic cigarettes that contain nicotine would only serve to further discourage current smokers from switching to an effective harm reduction tool. Even worse, a dramatic increase in the cost of e-cigarettes may send some current users back to smoking tobacco cigarettes. In order to make cigarettes obsolete, electronic cigarettes and other harm reduction products should be embraced and allowed to fairly compete on the market with traditional tobacco cigarettes.
- SB299 would put Hawaii-based electronic cigarette companies at a competitive disadvantage in the national market for vapor products. In Hawaii, many customers of our brick and mortar locations will turn to the Internet if faced with a sudden price increase. Additionally, our wholesale and retail partners on the mainland will undoubtedly scoff at price hikes and will turn to suppliers in the 48 states that do not tax electronic cigarettes. This could force us to either move out of state, taking the jobs and revenue with us, or close the business altogether. This would mean a loss of both jobs and GET tax revenues.
- Over the years that we have been in business in the state, we have provided a product that tens of thousands of customers use every day to greatly reduce their tobacco use or quit smoking



altogether. This has improved the lives of smokers and ex-smokers in this state. The removal of secondhand smoke has helped non-smokers as well and has cut down on the amount of butt discard in our community.

- VOLCANO Fine Electronic Cigarettes is currently one of the largest electronic cigarette suppliers in the mainland U.S. We are also the number one FedEx shipper in the State of

Hawaii. We bring money into the local economy from the mainland and have provided a much-needed boost to Hawaii by hiring local employees. Throughout the recession we have grown our business and our taxable revenues every year.

It is our belief that this unjustified product classification and tax policy is in the best interest of no one in the state of Hawaii.

Thank you for your time and consideration. If you have any questions, please feel free to contact me or Volcano's representative Celeste Nip at [nipfire@me.com](mailto:nipfire@me.com).

Sincerely, Cory Smith CEO and Owner VOLCANO Fine Electronic Cigarettes®

1003 Sand Island Access Rd. Suite #1260, Honolulu, HI 96813

---

**RESEARCH REPORT** doi:10.1111/add.12623

## **Real-world effectiveness of e-cigarettes when used to aid smoking cessation: a cross-sectional population study**

**Jamie Brown<sup>1,2</sup>, Emma Beard<sup>1</sup>, Daniel Kotz<sup>1,3</sup>, Susan Michie<sup>2,4</sup> & Robert West<sup>1,4</sup>**

Cancer Research UK Health Behaviour Research Centre, University College London, London, UK,<sup>1</sup> Department of

## ABSTRACT

**Background and Aims** Electronic cigarettes (e-cigarettes) are rapidly increasing in popularity. Two randomized controlled trials have suggested that e-cigarettes can aid smoking cessation, but there are many factors that could influence their real-world effectiveness. This study aimed to assess, using an established methodology, the effectiveness of e-cigarettes when used to aid smoking cessation compared with nicotine replacement therapy (NRT) bought over-the-counter and with unaided quitting in the general population. **Design and Setting** A large cross-sectional survey of a representative sample of the English population. **Participants** The study included 5863 adults who had smoked within the previous 12 months and made at least one quit attempt during that period with either an e-cigarette only ( $n = 464$ ), NRT bought over-the-counter only ( $n = 1922$ ) or no aid in their most recent quit attempt ( $n = 3477$ ). **Measurements** The primary outcome was self-reported abstinence up to the time of the survey, adjusted for key potential confounders including nicotine dependence. **Findings** E-cigarette users were more likely to report abstinence than either those who used NRT bought over-the-counter [odds ratio (OR) = 2.23, 95% confidence interval (CI) = 1.70–2.93, 20.0 versus 10.1%] or no aid (OR = 1.38, 95% CI = 1.08–1.76, 20.0 versus 15.4%). The adjusted odds of non-smoking in users of e-cigarettes were 1.63 (95% CI = 1.17–2.27) times higher compared with users of NRT bought over-the-counter and 1.61 (95% CI = 1.19–2.18) times higher compared with those using no aid. **Conclusions** Among smokers who have attempted to stop without professional support, those who use e-cigarettes are more likely to report continued abstinence than those who used a licensed NRT product bought over-the-counter or no aid to cessation. This difference persists after adjusting for a range of smoker characteristics such as nicotine dependence.

**Keywords** Cessation, cross-sectional population survey, e-cigarettes, electronic cigarettes, nicotine replacement therapy, NRT, quitting, smoking.

*Correspondence to:* Jamie Brown, Health Behaviour Research Centre, Department of Epidemiology and Public Health, University College London, 1-19 Torrington Place, London WC1E 6BT, UK. E-mail: jamie.brown@ucl.ac.uk Submitted 27 February 2014; initial review completed 8 April 2014; final version accepted 12 May 2014

---

## INTRODUCTION

Smoking is one of the leading risk factors for premature death and disability and is estimated to kill 6 million people world-wide each year [1]. The mortality and morbidity associated with cigarette smoking arises primarily from the inhalation of toxins other than nicotine contained within the smoke. Electronic cigarettes (e-cigarettes) provide nicotine via a vapour that is drawn into the mouth, upper airways and possibly lungs [2,3].

These devices use a battery-powered heating element activated by suction or manually to heat a nicotine solution and transform it into vapour. By providing a vapour containing nicotine without tobacco combustion, e-cigarettes appear able to reduce craving and withdrawal associated with abstinence in smokers [2,4,5], while toxicity testing suggests that they are much safer to the user than ordinary cigarettes [3].

E-cigarettes are increasing rapidly in popularity: prevalence of ever-use among smokers in the United

© 2014 The Authors. *Addiction* published by John Wiley & Sons Ltd on behalf of Society for the Study of Addiction. *Addiction*, **109**, 1531–1540 This is an open access article under the terms of the Creative Commons Attribution-NonCommercial-NoDerivs License, which permits use and distribution in any medium, provided the original work is properly cited, the use is non-commercial and no modifications or adaptations are made.

1532 *Jamie Brown et al.*

States appears to have increased from approximately 2% in 2010 to more than 30% in 2012, and the rate of increase appears to be similar in the United Kingdom [6–9]. Although there are concerns about their wider public health impact relating to the renormalization of smoking and promotion of smoking in young people, crucially two randomized controlled trials have suggested that e-cigarettes may aid smoking cessation [10,11]. However, there are many factors that influence real-world effectiveness, including the brand of e-cigarette, the way they are used and who chooses to use them [12]. Therefore, it is a challenge to establish probable contribution to public health through randomized efficacy trials alone. Moreover, this kind of evidence will take many years to emerge, and in the meantime the products are developing rapidly and countries require evidence on effectiveness to inform decisions on how to regulate them [13–19]. As a result, there is an urgent need to be able to make an informed judgement on the real-world effectiveness of currently popular brands as chosen by the millions of smokers across the world who are using them in an attempt to stop smoking [6–9].

Several studies have attempted to examine the relationship between the use of e-cigarettes and smoking status in the real world by surveying regular e-cigarette users [20–27]. These studies—including one using a longitudinal design [27]—have found that users consistently report that e-cigarettes helped them to quit or reduce their smoking. However, because the samples were self-selected, the results have to be interpreted with caution. In more general samples the evidence is less positive. One national study of callers to a quitline, which assessed the cross-sectional association of e-cigarette use and current smoking status at a routine follow-up evaluation of the quitline service, found that e-cigarette users compared with never users were less likely to be abstinent [28]. In a longitudinal study of a general population sample, e-cigarette users at baseline were no more likely to have quit permanently at a 12-month follow-up despite having reduced their cigarette consumption [29]. However, neither of these studies adjusted for important potential confounding variables and both evaluated the association between quitting and the use of e-cigarettes for any purpose, not specifically as an aid to quitting. It is crucial

to distinguish between the issue of whether use of e-cigarettes in a quit attempt improves the chances of success of that attempt from the issue of whether the use of e-cigarettes, for whatever purpose, such as aiding smoking reduction or recreation, promotes or suppresses attempts to stop. In determining the overall effect on public health both considerations are important, but they require different methodologies to address them.

An ongoing national surveillance programme (the Smoking Toolkit Study) has been tracking the use of

e-cigarettes as a reported aid to cessation among the general population in England since July 2009 [30]. This programme has established a method of assessing real-world effectiveness of aids to cessation by comparing the success rates of smokers trying to quit with different methods and adjusting statistically for a wide range of factors that could bias the results, such as nicotine dependence [31]. The method has been able to detect effects of behavioural support and prescription medications to aid cessation and found a higher rate of success when using varenicline than prescription nicotine replacement therapy (NRT) [32,33], supporting findings from randomized controlled trials and clinical observation studies [34–37]. This method cannot achieve the same level of internal validity as a randomized controlled trial, but clearly has greater external validity, so both are important in determining the potential public health contribution of devices hypothesized to aid cessation, such as e-cigarettes.

Given that smokers already have access to licensed NRT products, it is important to know whether e-cigarettes are more effective in aiding quitting. This comparison is particularly important for two reasons. First, buying a licensed NRT product from a shop, with no professional support, is the most common way of using it in England, and secondly, previous research has found that this usage was not associated with greater success rates than quitting unaided in the real-world [33]. It is therefore important to know whether e-cigarettes can increase abstinence compared to NRT bought over-the-counter.

The current study addressed the question of how effective e-cigarettes are compared with NRT bought over-the-counter and unaided quitting in the general population of smokers who are attempting to stop.

## **METHODS**

### **Study design**

The design was cross-sectional household surveys of representative samples of the population of adults in England conducted monthly between July 2009 and February 2014. To examine the comparative real-world effectiveness of e-cigarettes, the study compared the self-reported abstinence rates of smokers in the general population trying to stop who used e-cigarettes only (i.e. without also using face-to-face behavioural support or any medically licensed pharmacological cessation aid) with those who used NRT bought over-the-counter only or who made an unaided attempt, while adjusting for a wide range of key potential confounders. The surveys are part of the ongoing Smoking

Toolkit Study, which is designed to provide information about smoking

© 2014 The Authors. *Addiction* published by John Wiley & Sons Ltd on behalf of Society for the Study of Addiction  
*Addiction*, **109**, 1531–1540

prevalence and behaviour in England [30]. Each month a new sample of approximately 1800 adults aged  $\geq 16$  years are selected using a form of random location sampling, and complete a face-to-face computer-assisted survey with a trained interviewer. The full methods have been described in detail and shown to result in a sample that is nationally representative in its socio-demographic composition and proportion of smokers [30]. Approval was granted by the ethics committee of University College London, UK.

### **Study population**

For the current study, we used aggregated data from respondents to the survey in the period from July 2009 (the first wave to track use of e-cigarettes to aid cessation) to February 2014 (the latest wave of the survey for which data were available), who smoked either cigarettes (including hand-rolled) or any other tobacco product (e.g. pipe or cigar) daily or occasionally at the time of the survey or during the preceding 12 months. We included those who had made at least one quit attempt in the preceding 12 months, assessed by asking: ‘How many serious attempts to stop smoking have you made in the last 12 months? By serious attempt I mean you decided that you would try to make sure you never smoked again. Please include any attempt that you are currently making and please include any successful attempt made within the last year’. We included respondents who used either e-cigarettes or NRT bought over-the-counter during their most recent quit attempt, and an unaided group defined as those who had not used any of the following: e-cigarettes; NRT bought over-the-counter; a prescription stop-smoking medication; or face-to-face behavioural support. We excluded those who used either e-cigarettes or NRT bought over-the-counter in combination with one another, a prescription stop-smoking medication or face-to-face behavioural support.

### **Measurement of effect: quitting method**

The use of different quitting methods were assessed for the most recent attempt by asking: ‘Which, if any, of the following did you try to help you stop smoking during the most recent serious quit attempt?’ and included: (i) e-cigarettes; (ii) NRT bought over-the-counter; (iii) no aid (i.e. had not used any of e-cigarettes, NRT bought over-the-counter, a prescription stop-smoking medication or face-to-face behavioural support).

### **Measurement of outcome: self-reported non-smoking**

Our primary outcome was self-reported non-smoking up to the time of the survey. Respondents were asked: ‘How long did your most recent serious quit attempt last before you went back to smoking?’. Those responding ‘I am still not smoking’ were defined as non-smokers. Previous research has shown that self-reported abstinence in surveys of this kind is not subject to the kind of biases observed in clinical trials where there is social pressure to claim abstinence [38].

## Measurement of potential confounders

We measured variables potentially associated with the different quitting methods and that may also have an effect on the outcome. These potential confounders were chosen a priori. The most important factor was nicotine dependence, for which we used two questions. First, time spent with urges to smoke was assessed by asking all respondents: 'How much of the time have you felt the urge to smoke in the past 24 hours? Not at all (coded 0), a little of the time (i), some of the time (ii), a lot of the time (iii), almost all of the time (iv), all of the time (v)'. Secondly, strength of urges to smoke was measured by asking: 'In general, how strong have the urges to smoke been? Slight (i), moderate (ii), strong (iii), very strong (iv), extremely strong (v)'. This question was coded '0' for smokers who responded 'not at all' to the previous question. In this population these two ratings have been found to be a better measure of dependence (i.e. more closely associated with relapse following a quit attempt) than other measures [32,33,39]. The demographic characteristics assessed were age, sex and social grade (dichotomized into two categories: ABC1, which includes managerial, professional and intermediate occupations; and C2DE, which includes small employers and own-account workers, lower supervisory and technical occupations, and semi-routine and routine occupations, never workers and long-term unemployed). We also assessed the number of quit attempts in the last year prior to the most recent attempt, time since the most recent quit attempt was initiated (either more or less than 6 months ago), whether smokers had tried to quit abruptly or gradually and the year of the survey.

## Analysis

Bivariate associations between the use of different quitting methods and potentially confounding socio-demographic and smoking history variables were assessed with  $\chi^2$  tests and one-way analyses of variance (ANOVA)s for categorical and continuous variables, respectively. Significant omnibus results were investigated further by *post-hoc* Sidak-adjusted  $\chi^2$  tests and *t*-tests.

Our measure of dependence (strength of urges to smoke) assumed that the score relative to other smokers would remain the same from pre- to post-quitting [32,33]. If a method of quitting reduced the strength of

© 2014 The Authors. *Addiction* published by John Wiley & Sons Ltd on behalf of Society for the Study of Addiction  
*Addiction*, **109**, 1531–1540

*Real-world effectiveness of e-cigarettes* 1533

1534 *Jamie Brown et al.*

urges to smoke more than another method, this would tend to underestimate the effectiveness of that intervention because the smokers using this method would appear to be less dependent. To test for this bias, we used an analysis of covariance (ANCOVA) to examine whether the difference in strength of urges to smoke in smokers versus non-smokers depended upon the method of quitting, adjusting for the time since the quit attempt started.

In the analysis of the associations between quitting method and abstinence, we used a logistic regression model in which we regressed the outcome measure (self-reported non-smoking compared with smoking) on the effect measure (use of e-cigarettes compared with either NRT bought over-the-counter or no aid). The primary analysis was an adjusted model that included the potential confounders listed above and two interaction terms: (i) between time since last quit attempt and time spent with urges, and (ii) between time since last quit attempt and strength of urges to smoke. These interaction terms were used to reflect the fact that urges to smoke following a quit attempt are influenced by whether an individual is currently abstinent and the duration of abstinence [32,33]. In addition to the model from the primary analysis ('fully adjusted model'; model 4), we constructed a simple model including only the effect measure ('unadjusted model'; model 1), a model that included the effect measure, year of the survey and all potential confounders except for the two measures of tobacco dependence, and a model that included all variables from the previous model and the two measures of tobacco dependence but without their interaction terms ('partially adjusted models'; models 2 and 3, respectively) to assess the extent of confounding by dependence. As *post-hoc* sensitivity analyses, the models were re-examined using different potential confounders from the ones specified a priori and reported in previous publications using the same methodology [32,33]. First, the time since the initiation of the quit attempt was included using the following six categories: 'in the last week'; 'more than a week and up to a month'; 'more than 1 month and up to 2 months'; 'more than 2 months and up to 3 months'; 'more than 3 months and up to 6 months'; and 'more than 6 months and up to a year'. Secondly, an additional index of dependence—the heaviness of smoking index (HSI) [40]—was included. The HSI was assessed by asking current smokers to estimate current cigarettes per day and time to first cigarette (the two items comprising HSI) and by asking non-smokers to recall these behaviours prior to their quit attempt. Finally, in *post-hoc* subgroup analyses all models were repeated (i) among those reporting smoking one or more than one cigarette per day (CPD) to determine whether inclusion of very light smokers might have had an influence on the results; (ii) among those completing the survey between 2012–14

once e-cigarette usage had become prevalent; and (iii) in the two subsamples of respondents who had started their most recent quit attempt less or more than 6 months ago, in order to assess the interplay between long-term effectiveness and the occurrence of differential recall bias. All analyses were performed with complete cases.

## RESULTS

A total of 6134 respondents reported a most recent quit attempt in the last 12 months that was either unaided ( $n = 3477$ ) or supported by NRT bought over-the-counter ( $n = 2095$ ), e-cigarettes ( $n = 489$ ) or both ( $n = 73$ ). Those using both were excluded as were those using a prescription stop-smoking medication or face-to-face behavioural support in combination with either NRT bought over-the-counter ( $n = 173$ ) or e-cigarettes ( $n = 25$ ). Thus, the study population consisted of 5863 smokers who had made an attempt to quit in the previous year, of whom 7.9% (464) had used e-cigarettes, 32.8% (1922) had used NRT bought over-the-counter and 59.3% (3477) had used no aid to cessation. Quitting method did not differ by sex or the number of quit attempts in the past year but was

associated with age, social grade, time since the quit attempt started, CPD, smoking less than one CPD, the measures of dependence (time with and strength of urges and HSI) and whether the attempt had begun abruptly (see Table 1). The *post-hoc* comparisons showed that those who used either e-cigarettes or no aid were younger than those using NRT over-the-counter, and that those who used NRT over-the-counter or no aid were more likely to hold a lower social grade than those using e-cigarettes. As would be expected, given the recent advent of e-cigarettes, the quit attempts of e-cigarette users were less likely to have begun more than 6 months previously than those using NRT over-the-counter or no aid. Those using NRT bought over-the-counter smoked more cigarettes and scored higher than either of the other two groups on all measures of dependence. E-cigarette users smoked more cigarettes, and were more dependent by the strength of urges measure and HSI than those using no aid. Finally, those using no aid were more likely to have smoked less than one CPD and stopped abruptly than the other two groups.

Strengths of urges to smoke were higher in smokers than in non-smokers (see Table 2). However, the mean differences in strength of urges between smokers and non-smokers were similar across method of quitting: the interaction between smoking status (smokers versus non-smokers) and method of quitting in an ANCOVA of the strength of urges adjusted for the time since quit attempt started was not significant ( $F_{(2, 5856)} = 1.50, P = 0.22$ ).

Non-smoking was reported among 20.0% (93 of 464) of those using e-cigarettes, 10.1% (194 of 1922) using

© 2014 The Authors. *Addiction* published by John Wiley & Sons Ltd on behalf of Society for the Study of Addiction  
*Addiction*, 109, 1531–1540

*Real-world effectiveness of e-cigarettes* 1535 **Table 1** Associations between characteristics of the sample and use of different quitting methods.

---

Mean (SD) age% (n) Female% Social grade C2DE Mean (SD) cigarettes per day<sup>d</sup>% (n) < 1 cigarettes per day<sup>d</sup>% (n) Time since quit attempt started >26 weeks Mean (SD) quit attempts in the past year Mean (SD) time spent with urges to smoke (0–5) Mean (SD) strength of urges to smoke (0–5) Mean (SD) heaviness of smoking index<sup>†</sup>% (n) Abrupt attempt (no gradual cutting down first)

*E-cigarettes* (n = 464)

39.0 (15.6)<sup>a</sup> 47.2 (219) 59.3 (275)<sup>cd</sup> 12.6 (8.0)<sup>ef</sup>

0.7 (3)<sup>h</sup> 23.7 (110)<sup>jk</sup>

1.6 (0.9) 1.9 (1.3)<sup>l</sup> 2.0 (1.2)<sup>no</sup> 2.0 (1.5)<sup>qr</sup>

50.4 (234)<sup>t</sup>

*NRT over-the-counter*<sup>s</sup> (n = 1922)



41.2 (15.3)<sup>ab</sup> 51.1 (982) 65.9 (1266)<sup>c</sup> 13.8 (8.5)<sup>eg</sup>

0.8 (15)<sup>i</sup> 36.4 (700)<sup>j</sup> 1.6 (0.9)

2.2 (1.3)<sup>lm</sup> 2.2 (1.1)<sup>np</sup> 2.3 (1.5)<sup>qs</sup> 52.5 (1010)<sup>u</sup>

No aid (*n* = 3477) *P*

37.5 (16.2)<sup>b</sup> \*\*\* 48.9 (1699) NS 65.5 (2277)<sup>d</sup> \* 10.9 (8.1)<sup>fg</sup> \*\*\*

2.8 (94)<sup>hi</sup> \*\*\* 36.5 (1269)<sup>k</sup> \*\*\* 1.5 (0.9) NS 1.8 (1.3)<sup>m</sup> \*\*\* 1.8 (1.1)<sup>op</sup> \*\*\* 1.6 (1.5)<sup>rs</sup> \*\*\* 59.0 (2051)<sup>tu</sup> \*\*\*

---

Different pairs of superscript letters indicate a significant difference ( $P < 0.05$ ) between two groups after Sidak adjustment for multiple comparisons. \* $P < 0.05$ ; \*\*\* $P < 0.001$ ; NS = not statistically significant ( $P \geq 0.05$ ). §A subgroup of those using nicotine replacement therapy (NRT) over-the-counter provided information about the form of NRT ( $n = 975$ ): 60.0% (585) used a patch, 21.0% (205) gum, 14.9% (145) an inhalator, 6.2% (60) lozenges, 1.2% (12) microtabs and 1.0% (10) nasal spray. NB: response options were not mutually exclusive and 11.1% (108) reported using more than one form. ¶Data were missing for 156 respondents (e-cigarettes: 22; NRT over-the-counter: 34; no aid: 100). †Data were missing for 172 respondents (e-cigarettes: 23; NRT over-the-counter: 36; no aid: 113). SD = standard deviation.

**Table 2** Differences between smokers and non-smokers in strength of urges to smoke by method of quitting.

---

*Method of quitting* *n*

E-cigarettes 371 NRT over-the-counter 1728 No aid 2942

*Mean (SD) strength of urges to smoke in smokers* *n*

2.3 (1.1) 93 2.3 (1.0) 194 2.0 (1.0) 535

*Mean (SD) strength of urges to smoke in non-smokers*

0.8 (1.1) 1.2 (1.3) 0.7 (1.1)

*Mean difference (95% CI) in strength of urges to smoke*

1.4 (1.2–1.7) 1.2 (1.0–1.3) 1.3 (1.2–1.4)

---

NB: the mean differences are calculated from exact rather than the rounded figures presented in columns 3 and 5 of this table. The mean difference in strength of urges to smoke was not different across the methods of quitting ( $F_{(2, 5856)} = 1.50$ ,  $P = 0.22$  for the interaction term between smoking status and method of quitting adjusted for the time since the quit attempt started). SD = standard deviation; CI = confidence interval; NRT = nicotine replacement therapy.

NRT over-the-counter and 15.4% (535 of 3477) using no aid. The unadjusted analyses indicated that e-cigarette users were more likely to be abstinent than either those using NRT bought over-the-counter [odds ratio (OR) = 2.23, 95% confidence interval (CI) =

1.70–2.93) or those who used no aid (OR = 1.38, 95% CI = 1.08– 1.76; see model 1, Table 3). The primary analyses revealed that the fully adjusted odds of non-smoking in users of e-cigarettes were 1.63 (95% CI = 1.17–2.27) times higher compared with users of NRT bought over-the-counter and 1.61 (95% CI = 1.19–2.18) times higher compared with those using no aid (see model 4, Table 3). The relative magnitudes of the ORs from the fully adjusted model with the other three unadjusted and partially adjusted models illustrate the confounding effects of dependence (see Table 3).

In *post-hoc* sensitivity analyses, the associations between quitting method and non-smoking were re-examined using models including different potential confounders. In a model including the more fine-grained assessment of time since the initiation of the quit attempt

than the measure presented in Table 1, the adjusted odds of non-smoking in users of e-cigarettes were 1.58 (95% CI = 1.13–2.21) times higher compared with users of NRT bought over-the-counter and 1.55 (95% CI = 1.14– 2.11) times higher compared with those using no aid. In another model that included another measure of dependence (HSI; missing data 3%,  $n = 172$ ), the adjusted odds of non-smoking in users of e-cigarettes were 1.63 (95% CI = 1.15–2.32) times higher compared with users of NRT bought over-the-counter and 1.43 (95% CI = 1.03–1.98) times higher compared with those using no aid.

In *post-hoc* subgroup analyses, very light smokers were shown to have little influence on the pattern of results: in repeated analyses among those 5595 smokers reporting smoking one or more than one CPD the adjusted odds of non-smoking in users of e-cigarettes were higher compared with users of NRT bought over-the-counter (OR = 1.59, 95% CI = 1.13–2.26) and compared with those using no aid (OR = 1.63, 95% CI = 1.18–2.24). Similarly, the exclusion of respondents

© 2014 The Authors. Addiction published by John Wiley & Sons Ltd on behalf of Society for the Study of Addiction  
*Addiction*, **109**, 1531–1540

1536 *Jamie Brown et al.* **Table 3** Associations between quitting method and abstinence.

---

Full sample ( $n = 5863$ ) % ( $n$ ) Self-reported

non-smoking

Subsample: quit attempt % ( $n$ ) Self-reported

non-smoking

Subsample: quit attempt % ( $n$ ) Self-reported

non-smoking

(1) *e-Cigarettes*

20.0 (93/464)

(2) *NRT over-the-counter*

10.1 (194/1922)

(3) *No aid*

15.4 (535/3477)

14.6 (323/2208)

16.7 (212/1269)

(1) versus (2) Model 1: OR (95% CI) Model 2: OR (95% CI) Model 3: OR (95% CI) Model 4: OR (95% CI)

2.23 (1.70–2.93)\*\*\* 1.88 (1.40–2.52)\*\*\* 1.63 (1.17–2.28)\*\* 1.63 (1.17–2.27)\*\*

(1) versus (3) Model 1: OR (95% CI) Model 2: OR (95% CI) Model 3: OR (95% CI) Model 4: OR (95% CI)

1.38 (1.08–1.76)\* 1.21 (0.92–1.58) 1.62 (1.19–2.19)\*\* 1.61 (1.19–2.18)\*\*

started  $\leq$ 26 weeks ( $n = 3784$ ) 20.3 (72/354) 11.0 (135/1222)

started  $>$ 26 weeks ( $n = 2079$ ) 19.1 (21/110) 8.4 (59/700)

1.49 (1.12–1.98)\*\* 1.39 (1.01–1.90)\* 1.88 (1.32–2.68)\*\*\*

Model 1 = unadjusted; model 2 = adjusted for age, sex, social grade, time since quit attempt started, quit attempts in the past year, abrupt versus gradual quitting and year of the survey; model 3 = adjusted for the variables from model 2 and time spent with urges to smoke and strength of urges to smoke; model 4 = adjusted for the variables from model 3 and the interaction terms time since last quit attempt started  $\times$  time spent with urges and time since last quit attempt started  $\times$  strength of urges to smoke. NB: for the two subsample analyses, model 4 is redundant, as there is no variation in the time since quit attempt. \* $P < 0.05$ ; \*\* $P < 0.01$ ; \*\*\* $P < 0.001$ . OR = odds ratio; CI = confidence interval; NRT = nicotine replacement therapy.

during a time when e-cigarette usage was relatively rare (2009–11) had little effect on the results: among those 2306 smokers responding between 2012–14 the adjusted odds of non-smoking in users of e-cigarettes were higher compared with users of NRT bought over-the-counter (OR = 1.59, 95% CI = 1.05–2.42) and those using no aid (OR = 1.46, 95% CI = 1.04–2.05). In a final subgroup analysis the models were re-examined among those who started their quit attempt more or less than 6 months ago: there was only evidence among those who began their attempts less than 6 months ago of higher odds of non-smoking in users of e-cigarettes compared with users of NRT bought over-the-counter or those using no aid in the fully adjusted models (see Table 3).

## **DISCUSSION**

Respondents who reported having used an e-cigarette in their most recent quit attempt were more likely to report still not smoking than those who used NRT bought over-the-

counter or nothing. This difference remained after adjusting for time since the quit attempt started, year of the survey, age, gender, social grade, abrupt versus gradual quitting, prior quit attempts in the same year and a measure of nicotine dependence.

The unadjusted results have value in that they demonstrate self-reported abstinence is associated with quit-

ting method among those who use these methods to aid cessation in real-world conditions. However, this was not a randomized controlled trial and there were differences in the characteristics of those using different methods. For example, more dependent smokers tended to be more likely to use treatment, and smokers from lower social grades were less likely to use e-cigarettes. Although the adjustments go beyond what is typically undertaken in these types of real-world studies [28,29,41–44], it was not possible to assess all factors that may have been associated with the self-selection of treatment and we cannot rule out the possibility that an unmeasured confounding factor is responsible for the finding. For example, motivation to quit is likely to have been associated positively with the use of treatment. However, previous population studies have found that the strength of this motivation is not associated with success of quit attempts once started, so it is unlikely to explain our findings [45]. There are other variables which are typically related to abstinence that may also be related to the selection of treatment; for example, those using e-cigarettes may have been less likely to share their house with other smokers, had better mental health or greater social capital of a kind not measured by social grade. These possibilities mean the associations reported here must be interpreted with caution. Nevertheless, the data provide some evidence in forming a judgement as to whether the advent of e-cigarettes in the UK market is likely to be having a

© 2014 The Authors. *Addiction* published by John Wiley & Sons Ltd on behalf of Society for the Study of Addiction  
*Addiction*, **109**, 1531–1540

2.06 (1.50–2.82)\*\*\* 1.80 (1.27–2.55)\*\*\* 1.56 (1.06–2.29)\* —

2.56 (1.49–4.42)\*\*\* 1.98 (1.11–3.53)\*\* 1.64 (0.83–3.24) —

1.18 (0.72–1.94) 0.91 (0.54–1.55) 1.10 (0.59–2.06)

---

positive or negative impact on public health, in a way that a randomized controlled trial is unable to do.

The finding that smokers who had used an e-cigarette in their most recent quit attempt were more likely to report abstinence than those who used NRT bought over-the-counter, and that the latter did not appear to give better results than not using any aid [33], contributes to the debate about how far medicine regulation can go in ensuring that products used for smoking cessation are or continue to be effective in the real world [14–17]. Randomized controlled trials are clearly important in identifying potential efficacy, but real-world effectiveness will depend upon a number of other contextual variables. The current study, together with previous randomized trials, suggests that e-cigarettes

may prove to be both an efficacious and effective aid to smoking cessation [10,11]. In so far that this is true, e-cigarettes may substantially improve public health because of their widespread appeal [6–9] and the huge health gains associated with stopping smoking [46]. This has to be offset against any detrimental effects that may emerge, as the long-term effects on health have not yet been established. However, the existing evidence suggests the associated harm may be minimal: the products contain low levels of carcinogens and toxicants [3] and no serious adverse event has yet been reported in any of the numerous experimental studies. Regardless, the harm will certainly be less than smoking, and thus of greater importance is the possible long-term effect of e-cigarettes on cigarette smoking prevalence beyond helping some smokers to quit. For example, it has been suggested that e-cigarettes might re-normalize smoking, promote experimentation among young people who otherwise may not have tried smoking or lead to dual use together with traditional cigarettes, and thereby deter some smokers from stopping [47]. The current data do not address these issues. However, the rise in e-cigarette prevalence in England since 2010 has coincided with continued reduction in smoking prevalence [48].

If e-cigarette use is proving more effective than NRT bought over-the-counter, a number of factors may contribute to this [49]. A greater similarity between using e-cigarettes and smoking ordinary cigarettes in terms of the sensory experience could be one factor. Greater novelty is another. It is also possible that users of e-cigarettes use their products more frequently or for a longer period than those using NRT without professional support. These are all issues that need to be examined in future research.

This study was not designed to assess the comparative effectiveness of e-cigarettes and NRT or other medications obtained on prescription or behavioural support. The evidence still favours the combination of behavioural support and prescription medication as providing the

greatest chance of success [33,34,37], which is currently offered free at the point of access by the NHS stop smoking services in the United Kingdom.

A major strength of the current study is the use of a large, representative sample of the English population. Additionally, the study benefits from having begun to track the use of e-cigarettes as an aid to cessation at a time when e-cigarettes were only an emerging research issue. The importance of adjusting for nicotine dependence in real-world studies of smoking cessation is illustrated by the difference in the ORs between the models with and without this adjustment. The optimal method of adjusting for dependence would be to assess this in all participants prior to their quit attempt. However, in a wholly cross-sectional study, we believe the particular method used to adjust for dependence, established in two previous studies, is valid [32,33]. One of the most commonly used alternative measures of dependence — HIS — relies upon the number of cigarettes smoked and time to first cigarette of the day [40]. When smokers relapse they tend to do so with reduced consumption, which can lead to a false estimation of prior dependence in cross-sectional studies. This potential confound was avoided in the primary analysis by using a validated measure involving ratings of current urges to smoke and statistical adjustment of the urges for the time since the quit attempt was initiated [39]. The value of strength of

urges as a measure of dependence in cross-sectional research would be limited if different methods of stopping were linked differentially to lower or higher levels of urges in abstinent compared with relapsed smokers. For example, a method of stopping that led to a relatively higher reduction in urges could underestimate the effectiveness of that method by making it seem that those using it were less dependent. However, we have not previously found evidence in this population data set that urges to smoke in smokers versus quitters differs as a function of method [33], and it was true again in this study. Regardless, the pattern of results remained the same in both a sensitivity analysis that also included HSI and in a subgroup analysis that excluded very light smokers. It is unlikely, therefore, that differential dependence between the users of different treatments has led to a substantial over- or underestimation of the relative effectiveness of e-cigarettes in the current study. Nevertheless, future studies may be able to draw stronger inferences by including a broader array of dependence measures or assessing dependence prior to a quit attempt.

The study had several limitations. First, abstinence was not verified biochemically. In randomized trials, this would represent a serious limitation because smokers receiving an active treatment often feel social pressure to report abstinence. However, in population surveys the

© 2014 The Authors. *Addiction* published by John Wiley & Sons Ltd on behalf of Society for the Study of Addiction  
*Addiction*, **109**, 1531–1540

### *Real-world effectiveness of e-cigarettes* 1537

1538 *Jamie Brown et al.*

social pressure and the related rate of misreporting is low and it is generally considered acceptable to rely upon self-reported data [38]. A related issue is the assessment of abstinence by asking respondents whether they were ‘still not smoking’. This definition classified as abstinent those who had one or more lapses but resumed not smoking. This limitation would be serious if the rate of lapsing was associated with method of quitting, and should be assessed in future studies. By contrast, advantages of this measure were the assessment of prolonged abstinence, as advocated in the Russell Standard, and a clear relationship to the quit attempt in question. An alternative approach, with a view to survival analysis, may have been to assess the length of abstinence since quit date among all respondents, including those who had relapsed by the time of the survey. However, this assessment would have added noise and potential bias with smokers needing to recall the time of relapse and having different interpretations of their return to smoking (i.e. first lapse, daily but reduced smoking, or smoking at pre-quit level). The strength of our approach is that smokers only needed to know whether they were currently still not smoking.

Secondly, there was a reliance upon recall data. The assessment of the most recent quit attempt involved recall of the previous 12 months and introduced scope for bias. The bias associated with recall of failed quit attempts would be expected to reduce the apparent effectiveness of reported aids to cessation because quit attempts using such aids would be more salient than those that were unaided [31]. Therefore, recall bias should militate

against finding a benefit of e-cigarettes compared with no aid to cessation. Consistent with this explanation, the effect size for e-cigarettes compared with no aid appeared lower in smokers who started their quit attempt more than 6 months ago than in smokers who started their quit attempt less than 6 months ago. Although the power to detect the associations in these subgroups was limited, the explanation that the lack of effect in the more distant attempts was related to differential recall bias is also supported by the absolute rate of non-smoking being higher in those making unaided attempts more than 6 compared with less than 6 months ago. Alternatively, the finding may reflect a reduced long-term effectiveness of e-cigarettes. Future longitudinal studies of e-cigarettes as aids to cessation in the general population may differentiate these explanations and would represent a valuable improvement upon the current study.

Thirdly, NRT over-the-counter and e-cigarettes both represent heterogeneous categories. In particular, there is considerable variability in nicotine vaporization between different types of e-cigarette [50,51]. Similarly, the simple definition of using one or the other aid to support an attempt is likely to have masked variability in how heavily, frequently and how long either NRT over-the-counter or

e-cigarettes were used by different smokers [12,52–54]. It is also possible that there were differences between the groups in their experience of unanticipated side effects. It is precisely because of all these factors—type/brand of NRT over-the-counter or e-cigarette, intensity and frequency of usage and experience of unanticipated side effects—that it is important to examine real-world effectiveness. However, it also means that we cannot make more exact statements about relative effectiveness of different products and ways in which they may be used. Given this huge variability it may be many years before one could accumulate enough real-world data to address these questions. Finally, the prevalence of e-cigarettes has been increasing in England over the study period and this may affect real-world effectiveness. Although the evidence does not yet suggest an ‘early adopters’ effect—the current results persisted after adjusting for the year of survey and in a subgroup analysis limiting the data to a period when e-cigarette usage had become prevalent—these findings will need to be revisited to establish whether or not the apparent advantage of e-cigarettes is sustained.

In conclusion, among smokers trying to stop without any professional support, those who use e-cigarettes are more likely to report abstinence than those who use a licensed NRT product bought over-the-counter or no aid to cessation. This difference persists after adjusting for a range of smoker characteristics such as nicotine dependence.

### **Declaration of interests**

All authors have completed the Unified Competing Interest form at [http://www.icmje.org/coi\\_disclosure.pdf](http://www.icmje.org/coi_disclosure.pdf) (available on request from the corresponding author) and declare: JB’s post is funded by a fellowship from the UK Society for the Study of Addiction; R.W. is funded by Cancer Research UK; Cancer Research UK, the Department of Health and Pfizer funded data collection for this study (including a Pfizer investigator initiated award), and that at the outset data collection for the Smoking Toolkit Study was also supported by GlaxoSmithKline and Johnson and Johnson; J.B.,

D.K. and E.B. have all received unrestricted research grants from Pfizer; R.W. undertakes research and consultancy and receives fees for speaking from companies that develop and manufacture smoking cessation medications (Pfizer, J&J, McNeil, GSK, Nabi, Novartis and Sanofi-Aventis); there are no other financial relationships with any organizations that might have an interest in the submitted work in the previous 3 years, particularly electronic cigarette companies, and there are no other relationships or activities that could appear to have influenced the submitted work. Funding was provided for the conduct of this research and preparation of the manuscript. The funders had no

© 2014 The Authors. *Addiction* published by John Wiley & Sons Ltd on behalf of Society for the Study of Addiction  
*Addiction*, **109**, 1531–1540

final role in the study design; in the collection, analysis and interpretation of data; in the writing of the report; or in the decision to submit the paper for publication. All researchers listed as authors are independent from the funders and all final decisions about the research were taken by the investigators and were unrestricted.

#### Transparency declaration

J.B. affirms that the manuscript is an honest, accurate, and transparent account of the study being reported; that no important aspects of the study have been omitted; and that any discrepancies from the study as planned have been explained.

#### STROBE statement

All authors declare that study hypotheses arose before any inspection of the data and that all STROBE recommendations were followed.

#### Acknowledgements

The research team is part of the UK Centre for Tobacco and Alcohol Studies. We would like to thank Martin Jarvis, Lion Shahab and Tobias Raupach for providing valuable comments on a draft of the manuscript. The full data set, which includes individual level data, and statistical code are all available from the corresponding author at [jamie.brown@ucl.ac.uk](mailto:jamie.brown@ucl.ac.uk). Participants gave informed consent for anonymized data sharing.

#### References

1. Lim S. S., Vos T., Flaxman A. D., Danaei G., Shibuya K., Adair-Rohani H. *et al.* A comparative risk assessment of burden of disease and injury attributable to 67 risk factors and risk factor clusters in 21 regions, 1990–2010: a systematic analysis for the Global Burden of Disease Study 2010. *Lancet* 2012; **380**: 2224–60.
2. Bullen C., McRobbie H., Thornley S., Glover M., Lin R., Laugesen M. Effect of an electronic nicotine delivery device (e cigarette) on desire to smoke and withdrawal, user preferences and nicotine delivery: randomised cross-over trial. *Tob Control* 2010; **19**: 98–103.



3. Goniewicz M. L., Knysak J., Gawron M., Kosmider L., Sobczak A., Kurek J. *et al.* Levels of selected carcinogens and toxicants in vapour from electronic cigarettes. *Tob Control* 2014; **23**: 133–9.
4. Vansickel A. R., Cobb C. O., Weaver M. F., Eissenberg T. E. A clinical laboratory model for evaluating the acute effects of electronic ‘cigarettes’: nicotine delivery profile and cardiovascular and subjective effects. *Cancer Epidemiol Biomarkers Prev* 2010; **19**: 1945–53.
5. Dawkins L., Turner J., Hasna S., Soar K. The electronic- cigarette: effects on desire to smoke, withdrawal symptoms and cognition. *Addict Behav* 2012; **37**: 970–3.
6. Pearson J. L., Richardson A., Niaura R. S., Vallone D. M., Abrams D. B. e-Cigarette awareness, use, and harm perceptions in US adults. *Am J Public Health* 2012; **102**: 1758–66.
7. Zhu S.-H., Gamst A., Lee M., Cummins S., Yin L., Zoref L. The use and perception of electronic cigarettes and snus among the U.S. population. *PLOS ONE* 2013; **8**: e79332.
8. Dockrell M., Morison R., Bauld L., McNeill A. E-cigarettes: prevalence and attitudes in Great Britain. *Nicotine Tob Res* 2013; **15**: 1737–44.
9. Brown J., West R., Beard E., Michie S., Shahab L., McNeill A. Prevalence and characteristics of e-cigarette users in Great Britain: findings from a general population survey of smokers. *Addict Behav* 2014; **39**: 1120–25.
10. Bullen C., Howe C., Laugesen M., McRobbie H., Parag V., Williman J. *et al.* Electronic cigarettes for smoking cessation: a randomised controlled trial. *Lancet* 2013; **382**: 1629– 37.
11. Caponnetto P., Campagna D., Cibella F., Morjaria J. B., Caruso M., Russo C. *et al.* Efficiency and Safety of an eElectronic cigarette (ECLAT) as tobacco cigarettes substitute: a prospective 12-month randomized control design study. *PLOS ONE* 2013; **8**: e66317.
12. Vansickel A. R., Eissenberg T. Electronic cigarettes: effective nicotine delivery after acute administration. *Nicotine Tob Res* 2013; **15**: 267–70.
13. Lancet. E-cigarettes: a moral quandary. *Lancet* 2013; **382**: 914.
14. Cobb N. K., Abrams D. B. E-cigarette or drug-delivery device? Regulating novel nicotine products. *N Engl J Med* 2011; **365**: 193–5.
15. Cobb N. K., Cobb C. O. Regulatory challenges for refined nicotine products. *Lancet Respir Med* 2013; **1**: 431–3.
16. Hajek P., Foulds J., Houteket J. L., Swenor D., Yach D. Should e-cigarettes be regulated as a medicinal device? *Lancet Respir Med* 2013; **1**: 429–31.
17. Etter J.-F. Should electronic cigarettes be as freely available as tobacco? Yes. *BMJ (Clinical Research edn)* 2013; **346**: 3845–6.
18. Borland R. Electronic cigarettes as a method of tobacco

control. *BMJ* 2011; **343**: 6269–70.19. Flouris A. D., Oikonomou D. N. Electronic cigarettes: miracle

or menace? *BMJ* 2010; **340**: 311.20. Etter J.-F. Electronic cigarettes: a survey of users. *BMC Public*

*Health* 2010; **10**: 231.21. Etter J-F B. C. Electronic cigarette: users profile, utilization, satisfaction and perceived efficacy. *Addiction* 2011; **106**:

2017–28.22. Foulds J., Veldheer S., Berg A. Electronic cigarettes (e-cigs):

views of aficionados and clinical/public health perspectives.

*Int J Clin Pract* 2011; **65**: 1037–42.23. Siegel M. B., Tanwar K. L., Wood K. S. Electronic cigarettes

as a smoking-cessation tool: results from an online survey.

*Am J Prev Med* 2011; **40**: 472–5.24. Dawkins L., Turner J., Roberts A., Soar K. ‘Vaping’ profiles and preferences: an online survey of electronic cigarette

users. *Addiction* 2013; **108**: 1115–25.25. Goniewicz M. L., Lingas E. O., Hajek P. Patterns of electronic

cigarette use and user beliefs about their safety and benefits:

an internet survey. *Drug Alcohol Rev* 2013; **32**: 133–40. 26. Farsalinos K. E., Romagna G., Tsiapras D., Kyrzopoulos S., Spyrou A., Voudris V. Impact of flavour variability on electronic cigarette use experience: an internet survey. *Int J*

*Environ Res Public Health* 2013; **10**: 7272–82.© 2014 The Authors. *Addiction* published by John Wiley & Sons Ltd on behalf of Society for the Study of Addiction *Addiction*, **109**, 1531–1540

### *Real-world effectiveness of e-cigarettes* 1539

1540 *Jamie Brown et al.*

27. Etter J. F., Bullen C. A longitudinal study of electronic cigarette users. *Addict Behav* 2014; **39**: 491–4.
28. Vickerman K. A., Carpenter K. M., Altman T., Nash C. M., Zbikowski S. M. Use of electronic cigarettes among state tobacco cessation quitline callers. *Nicotine Tob Res* 2013; **15**: 1787–91.
29. Adkison S. E., O’Connor R. J., Bansal-Travers M., Hyland A., Borland R., Yong H.-H. *et al.* Electronic nicotine delivery systems: international tobacco control Four-Country Survey. *Am J Prev Med* 2013; **44**: 207–15.
30. Fidler J. A., Shahab L., West O., Jarvis M. J., McEwen A., Stapleton J. A. *et al.* ‘The smoking toolkit study’: a national study of smoking and smoking cessation in England.

- BMC Public Health* 2011; **11**: 479.
31. Borland R., Partos T. R., Cummings K. M. Systematic biases in cross-sectional community studies may underestimate the effectiveness of stop-smoking medications. *Nicotine Tob Res* 2012; **14**: 1483–7.
  32. Kotz D., Brown J., West R. Effectiveness of varenicline versus nicotine replacement therapy for smoking cessation with minimal professional support: evidence from an English population study. *Psychopharmacology (Berl)* 2014; **231**: 37–42.
  33. Kotz D., Brown J., West R. ‘Real-world’ effectiveness of smoking cessation treatments: a population study. *Addiction* 2014; **109**: 491–9.
  34. Brose L. S., West R., McDermott M. S., Fidler J. A., Croghan E., McEwen A. What makes for an effective stop-smoking service? *Thorax* 2011; **66**: 924–6.
  35. Brose L. S., West R., Stapleton J. A. Comparison of the effectiveness of varenicline and combination nicotine replacement therapy for smoking cessation in clinical practice. *Mayo Clin Proc* 2013; **88**: 226–33.
  36. Cahill K., Stead L. F., Lancaster T. Nicotine receptor partial agonists for smoking cessation. *Cochrane Database Syst Rev* 2012; **4**: CD006103.
  37. Stead L. F., Lancaster T. Combined pharmacotherapy and behavioural interventions for smoking cessation. *Cochrane Database Syst Rev* 2012; **10**: CD008286.
  38. Wong S. L., Shields M., Leatherdale S., Malaisson E., Hammond D. Assessment of validity of self-reported smoking status. *Health Rep* 2012; **23**: 47–53.
  39. Fidler J., Shahab L., West R. Strength of urges to smoke as a measure of severity of cigarette dependence: comparison with the Fagerström Test for Nicotine Dependence and its components. *Addiction* 2010; **106**: 631–8.
  40. Fagerström K., Furberg H. A comparison of the Fagerström Test for Nicotine Dependence and smoking prevalence across countries. *Addiction* 2008; **103**: 841–5.
  41. Pierce J. P., Gilpin E. A. Impact of over-the-counter sales on effectiveness of pharmaceutical aids for smoking cessation. *JAMA* 2002; **288**: 1260–4.
  42. Lee C-w K. J. Factors associated with successful smoking cessation in the United States, 2000. *Am J Public Health* 2007; **97**: 1503–9.
  43. Hagimoto A., Nakamura M., Morita T., Masui S., Oshima A. Smoking cessation patterns and predictors of quitting smoking among the Japanese general population: a 1-year follow-up study. *Addiction* 2010; **105**: 164–73.
  44. Yang J., Hammond D., Driezen P., O’Connor R. J., Li Q., Yong H. H. *et al.* The use of cessation assistance among smokers from China: findings from the ITC China Survey. *BMC Public Health* 2011; **11**: 75.
  45. Vangeli E., Stapleton J., Smit E. S., Borland R., West R. Predictors of attempts to stop smoking and their success in adult general population samples: a systematic review. *Addiction* 2011; **106**: 2110–21.

46. West R. The clinical significance of 'small' effects of smoking cessation treatments. *Addiction* 2007; **102**: 506–9. 47. Chapman S. Should electronic cigarettes be as freely available as tobacco cigarettes? No. *BMJ* 2013; **346**: 3840–1. 48. Brown J., West R. Smoking prevalence in England is below 20% for the first time in 80 years. *BMJ* 2014; **348**: 1378.49. Wagener T. L., Siegel M., Borrelli B. Electronic cigarettes: achieving a balanced perspective. *Addiction* 2012; **107**: 1545–8.50. Goniewicz M. L., Kuma T., Gawron M., Knysak J., Kosmider L. Nicotine levels in electronic cigarettes. *Nicotine Tob Res* 2013; **15**: 158–66.51. Goniewicz M. L., Hajek P., McRobbie H. Nicotine content of electronic cigarettes, its release in vapour and its consistency across batches: regulatory implications. *Addiction* 2014; **109**: 500–7. 52. Etter J-F B. C. Saliva cotinine levels in users of electronic cigarettes. *Eur Respir J* 2011; **38**: 1219–20. 53. Bansal M. A., Cummings K. M., Hyland A., Giovino G. A. Stop-smoking medications: who uses them, who misuses them, and who is misinformed about them? *Nicotine Tob Res* 2004; **6**: S303–S10. 54. Etter J.-F. Levels of saliva cotinine in electronic cigarette users. *Addiction* 2014; **109**: 825–9.

© 2014 The Authors. *Addiction* published by John Wiley & Sons Ltd on behalf of Society for the Study of Addiction  
*Addiction*, **109**, 1531–1540

---

## Original Article

# Electronic cigarettes as a harm reduction strategy for tobacco control: A step forward or a repeat of past mistakes?

Zachary Cahn<sup>a,\*</sup> and Michael Siegel<sup>b</sup>

<sup>a</sup>Department of Political Science, University of California at Berkeley, UC Berkeley Department of Political Science, 210 Barrows Hall #1950, Berkeley, CA 94720-1950, USA.

<sup>b</sup>Department of Community Health Sciences, Boston University School of Public Health, 801 Massachusetts Avenue, Boston, MA 02118, USA.

\*Corresponding author.

**Abstract** The issue of harm reduction has long been controversial in the public health practice of tobacco control. Health advocates have been reluctant to endorse a harm reduction approach out of fear that tobacco companies cannot be trusted to produce and market products that will reduce the risks associated with tobacco use. Recently, companies independent of the tobacco industry introduced electronic cigarettes, devices that deliver vaporized nicotine without combusting tobacco. We review the existing evidence on the safety and efficacy of electronic cigarettes. We then revisit the tobacco harm reduction debate, with a focus on these novel products. We conclude that electronic cigarettes show tremendous promise in the fight against tobacco-related morbidity and mortality. By dramatically expanding the potential for harm reduction strategies to achieve substantial health gains, they may fundamentally alter the tobacco harm reduction debate.

Journal of Public Health Policy advance online publication, 9 December 2010;  
doi:10.1057/jphp.2010.41

Keywords: electronic cigarette; harm reduction; nicotine regulation; tobacco control

## Introduction

Harm reduction is a framework for public health policy that focuses on reducing the harmful consequences of recreational drug use without necessarily reducing or eliminating the use itself.<sup>1</sup> Whereas harm reduction policies have been widely adopted

© 2010 Macmillan Publishers Ltd. 0197-5897 Journal of Public Health Policy 1–16 www.palgrave-journals.com/jphp/



Cahn and Siegel

---

for illicit drug use (for example, needle exchange programs<sup>2</sup>) and alcohol use (for example, designated driver programs<sup>3</sup>), they have not found wide support in tobacco control. Many within the tobacco control community have embraced nicotine replacement therapy (NRT) and other pharmaceutical products, but these products are designed as cessation strategies rather than recreational alternatives. Recently, however, a new product that does not fit neatly into any previous category has entered the nicotine market: the electronic cigarette. Electronic cigarettes do not contain tobacco, but they are recreational

nicotine devices and the user closely mimics the act of smoking. Thus, they are neither tobacco products nor cessation devices. The novel potential of electronic cigarettes warrants revisiting the harm reduction debate as it applies to these products.

In this article, we first explain what electronic cigarettes are and why they are difficult to categorize. Second, we examine the available evidence concerning the safety and efficacy of electronic cigarettes. Then, we review the most common arguments made against harm reduction in the tobacco control literature, followed by an analysis of each of these arguments in light of the recent emergence of electronic cigarettes. Finally, we identify conclusions from this analysis and their implications for the public health practice of tobacco control.

## What are Electronic Cigarettes and Why are They Novel?

Electronic cigarettes are hand-held devices that deliver nicotine to the user through the battery-powered vaporization of a nicotine/ propylene-glycol solution. The act of ‘smoking’ an electronic cigarette is called ‘vaping’ and it mimics smoking; but, there is no combustion and the user inhales vapor, not smoke. Although the nicotine is derived from tobacco, electronic cigarettes contain no tobacco. Theoretically, we would expect vaping to be less harmful than smoking as it delivers nicotine without the thousands of known and unknown toxicants in tobacco smoke. Moreover, a product that mimics the act of smoking, in addition to delivering nicotine, can address both pharmacologic and behavioral components of cigarette addiction. Electronic cigarettes are not manufactured or distributed by the tobacco industry or by the

---

2

© 2010 Macmillan Publishers Ltd. 0197-5897 Journal of Public Health Policy 1–16



Electronic cigarettes as a harm reduction strategy for tobacco control

---

pharmaceutical industry. Hundreds of small distributors market them over the internet and in shopping mall kiosks. They have been on the market in the United States for more than 3 years and have become

increasingly popular.

## Review of Evidence Regarding the Safety of Electronic Cigarettes

As B5300 of the estimated 10000–100000 chemicals in cigarette smoke have ever been identified,<sup>4</sup> we already have more comprehensive knowledge of the chemical constituents of electronic cigarettes than tobacco ones. We were able to identify 16 studies<sup>5–17</sup> that have characterized, quite extensively, the components contained in electronic cigarette liquid and vapor using gas chromatography mass spectrometry (GC-MS) (Table 1). These studies demonstrate that the primary components of electronic cigarette cartridges are propylene glycol (PG), glycerin, and nicotine. Of the other chemicals identified, the FDA has focused on potential health hazards associated with two: tobacco-specific nitrosamines (TSNAs) and diethylene glycol (DEG).<sup>5</sup>

TSNAs have been detected in two studies at trace levels.<sup>5,6</sup> The maximum level of total TSNAs reported was 8.2ng/g.<sup>6</sup> This compares with a similar level of 8.0ng in a nicotine patch, and it is orders of magnitude lower than TSNA levels in regular cigarettes.<sup>18</sup> Table 2 shows that electronic cigarettes contain only 0.07–0.2 per cent of the TSNAs present in cigarettes, a 500-fold to 1400-fold reduction in concentration. The presence of DEG in one of the 18 cartridges studied by the US Food and Drug Administration (FDA) is worrisome, yet none of the other 15 studies found any DEG. The use of a non-pharmaceutical grade of PG may explain this contamination.

Other than TSNAs and DEG, few, if any, chemicals at levels detected in electronic cigarettes raise serious health concerns. Although the existing research does not warrant a conclusion that electronic cigarettes are safe in absolute terms and further clinical studies are needed to comprehensively assess the safety of electronic cigarettes, a preponderance of the available evidence shows them to be much safer than tobacco cigarettes and comparable in toxicity to conventional nicotine replacement products.

Table 1: Laboratory studies of the components in and safety of electronic cigarettes<sup>5-17</sup>

Study

Brand tested

Main findings

Evaluation of e-cigarettes (FDA laboratory report)<sup>5</sup>

NJOY, Smoking Everywhere

‘Very low levels’ of tobacco-specific nitrosamines (TSNAs) were detected in 5 of 10 cartridges tested. Diethylene glycol (DEG) was detected about 0.1% in 1 of 18 cartridges tested.

Safety Report on the Ruyan e-Cigarette Cartridge and Inhaled Aerosol<sup>6</sup>

Ruyan

Trace levels of TSNAs were detected in the cartridge liquid. The average level of TSNAs was 3.9 ng/cartridge, with a maximum level of 8.2 ng/cartridge. Polyaromatic hydrocarbon carcinogens found in cigarette smoke were not detectable in cartridge liquid. No heavy metals detected. Exhaled carbon monoxide levels did not increase in smokers after use of the e-cigarette. The study concluded that e-cigarettes are very safe relative to cigarettes and safe in absolute terms on all measurements applied.

Ruyan E-cigarette Bench-top Tests<sup>7</sup> Characterization of Liquid ‘Smoke Juice’

Ruyan

None of the 50 priority-listed cigarette smoke toxicants were detected. Toxic emissions score for e-cigarette was 0, compared to 100–134 for regular cigarettes.

for Electronic Cigarettes<sup>8</sup>

Analysis of Components from Gamucci Electronic Cigarette Cartridges, Tobacco Flavour Regular Smoking Liquid<sup>9</sup>

Gamucci

GC-MS detected propylene glycol (77.5%), glycerin (14.0%), nicotine (8.5%), and cyclotene hydrate (0.08%) in e-cigarette liquid. Levels of cyclotene hydrate were not believed to be of concern.

Analysis of Components from Gamucci Electronic Cigarette Cartridges, Tobacco Flavour Light Smoking Liquid<sup>9</sup>

Gamucci

GC-MS detected propylene glycol (80.4%), glycerin (14.4%), and nicotine (5.3%) in e-cigarette



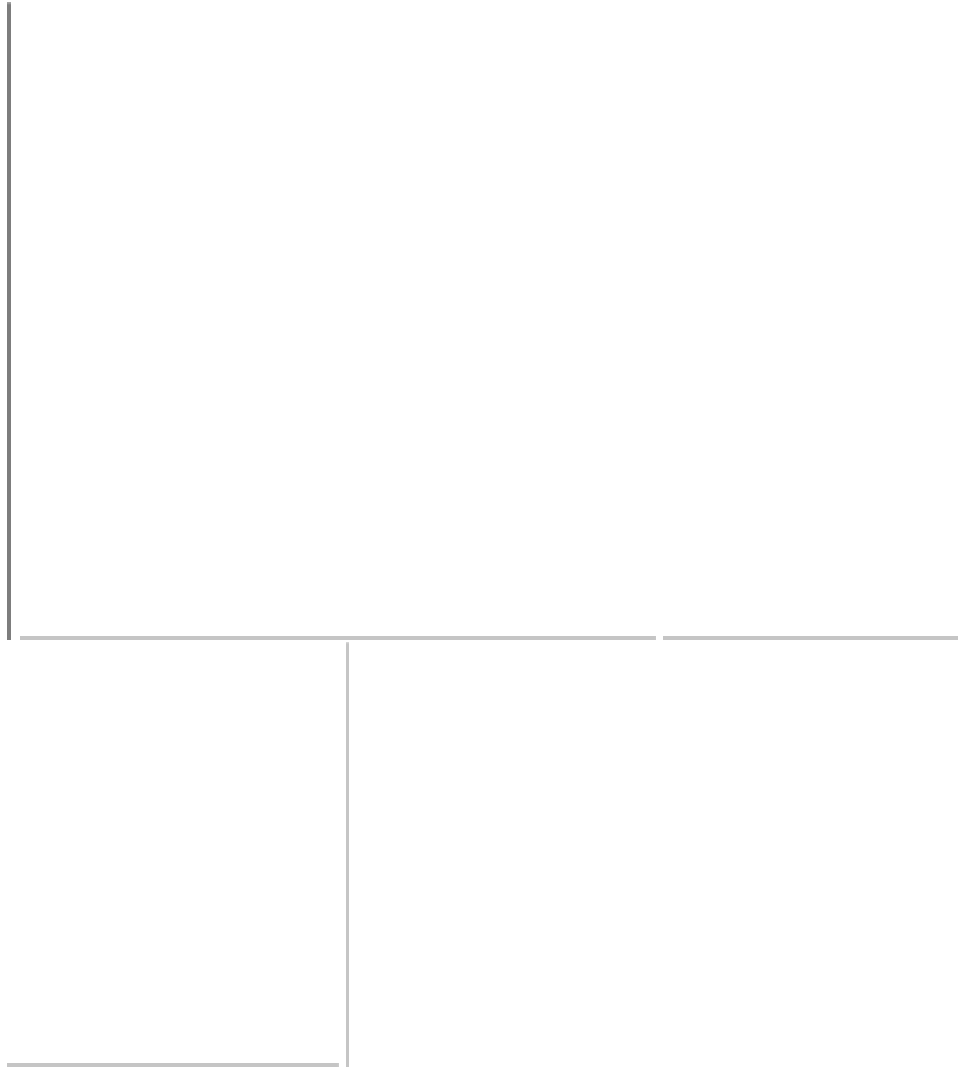
liquid. No other compounds detected.

### Liberty Stix

No compounds detected via gas chromatography mass spectrometry (GC-MS) of electronic cigarette cartridges or vapors other than propylene glycol (99.1% in vapor), glycerin (0.46%), and nicotine (0.44%).



Cahn and Siegel



© 2010 Macmillan Publishers Ltd. 0197-5897 Journal of Public Health Policy 1–16



Electronic cigarettes as a harm reduction strategy for tobacco control

#### Analysis of Components from Gamucci Gamucci Electronic Cigarette Cartridges, UltraLight Smoking Liquid<sup>9</sup>

GC-MS detected propylene glycol (85.5%), glycerin (11.2%), and nicotine (3.3%) in e-cigarette liquid. No other compounds detected.

#### Analysis of Components from Gamucci Gamucci Electronic Cigarette Cartridges, Tobacco Flavour Zero, Smoking Liquid<sup>9</sup> (0.77%), and a,3,4-tris[(trimethylsilyl)oxy]Benzeneacetic acid

#### NJOY e-Cigarette Health Risk NJOY Assessment<sup>10</sup>

The vapor constituents detected were propylene glycol, glycerin, nicotine, acetaldehyde, 1-methoxy-2-propanol, 1-hydroxy-2-propanone, acetic acid, 1-menthone, 2,3-butanediol, menthol, carvone, maple lactone, benzyl alcohol, 2-methyl-2-pentanoic acid, ethyl maltol, ethyl cinnamate, myosamine, benzoic acid, 2,3-bipyridine, cotinine, hexadecanoic acid, and 1'1-oxybis-2-propanol. No TSNAs, polyaromatic hydrocarbons, or other tobacco smoke toxicants were detected. On the basis of the amounts of these components present and an examination of the risk profile of these compounds, the report concludes that the only significant side effect expected would be minor throat irritation resulting from the acetaldehyde.

#### Characterization of Regal Cartridges for inLife Electronic Cigarettes<sup>11</sup>

No DEG was detected in the cartridge liquid or vapors.

#### Characterization of Regal Cartridges for inLife Electronic Cigarettes – Phase II<sup>12</sup>

No TSNAs were detected in the e-cigarette liquid (limit of detection was 20 ppm).

GC-MS detected propylene glycol (84.3%), glycerin (7.6%), 1,3-bis(3-phenoxyphenoxy)Benzene

(7.0%), 3-Isopropoxy- 1,1,1,7,7,7-hexamethyl-3,5,5-tris(trimethylsiloxy)tetrasiloxane

(0.39%) in e-cigarette liquid. No other compounds were detected. 1,3-bis(3-phenoxyphenoxy) Benzene is non-hazardous. The other two chemicals have an unknown safety profile, but are present at nominally low levels.



Cahn and Siegel

|  |  |
|--|--|
|  |  |
|--|--|

© 2010 Macmillan Publishers Ltd. 0197-5897 Journal of Public Health Policy 1–16

Table 1 continued

Study

Brand tested

Main findings

Analysis of Components from “e-Juice XX High 36 mg/ml rated Nicotine Solution”: ref

S55434<sup>13</sup>

e-Juice

GC-MS detected propylene glycol (51.2%), 1,3-bis(3-phenoxy phenoxy)Benzene (20.2%), glycerin (15.0%), nicotine (10.0%), vanillin (1.2%), ethanol (0.5%), and 3-cyclohexene-1-menthol, a.,a.4-trimethyl (0.4%). No other compounds detected. 1,3-bis(3-phenoxyphenoxy)Benzene is non-hazardous. Vanillin and 3- cyclohexene-1-menthol,a.,a.4-trimethyl have unknown safety profiles.

Analysis of Chemical Components from High, Med & Low Nicotine Cartridges<sup>14</sup>

The Electronic Cigarette Company (UK)

The compounds detected by GC-MS were propylene glycol, water, nicotine, ethanol, nitrogen, and triacetin. Triacetin is not known to be hazardous. No other compounds were detected.

Chemical Composition of “Instead” Electronic Cigarette Smoke Juice and Vapor<sup>15</sup>

Instead

No DEG was detected in e-cigarette liquid or vapor for the two products tested.

Gas Chromatography Mass Spectrometry (GC-MS) Analysis Report<sup>16</sup>

Not specified

GC-MS detected propylene glycol, glycerin, nicotine, caffeine, tetra-ethylene glycol, pyridine, methyl pyrrolyl, pyridine, methyl pyrrolidinyl, butyl-amine, and hexadecanoic acid in the e-cigarette liquid.

Super Smoker Expert Report<sup>17</sup>

Super Smoker

GC-MS detected propylene glycol, glycerin, nicotine, ethanol, acetone ethyl acetate, acetals, isobutyraldehyde, essential oils, and 2-methyl butanal in the e-cigarette liquid. No other compounds were detected.



Electronic cigarettes as a harm reduction strategy for tobacco control

---

Table 2: Maximum tobacco-specific nitrosamine levels<sup>a</sup> in various cigarettes and nicotine-delivery products (ng/g, except for nicotine gum and patch that are ng/patch or ng/gum piece)<sup>6</sup>

---

Product

Nicorette gum (4 mg)<sup>18</sup> NicoDerm CQ patch (4 mg)<sup>18</sup> Electronic cigarettes<sup>6</sup> Swedish

snus<sup>18</sup>Winston (full)<sup>18</sup>Newport (full)<sup>18</sup>Marlboro (ultra-light)<sup>18</sup> Camel (full)<sup>18</sup>Marlboro (full)<sup>18</sup>Skoal (long cut straight)<sup>18</sup>

NNN NNK

2.00 ND ND 8.00 3.87 1.46 980 180

2200 580 1100 830 2900 750 2500 900 2900 960 4500 470

NAT

ND ND 2.16

790

560

1900

1100

1700

2300

4100

NAB Total

ND 2.00 ND 8.00 0.69 8.18

60 2010 25 3365 55 3885 58 4808 91 5191

100 6260 220 9290

---

<sup>a</sup>The concentrations here represent nanograms (ng) of toxin detected per dose cartridge (which contains approximately 1 gm of e-liquid). They are compared to the amount of toxin contained in approximately one tobacco cigarette (approximately 1 gm of tobacco) or one unit of nicotine replacement product. Abbreviations: NNN=4-(methylnitrosamino)-1-(3-pyridyl)-1-butanone; NNK=N<sup>0</sup>-nitrosonor-nicotine; NAT=N<sup>0</sup>-nitrosoanatabine; NAB=N<sup>0</sup>-nitrosoanabasine. ND=Not detected.

## Review of Evidence about the Effectiveness of Electronic Cigarettes in Smoking Cessation

No studies have measured directly the effectiveness of electronic cigarettes in helping smokers cease smoking. Two published studies have examined the effectiveness of the product by measuring their effect on cravings and other short-term indicators. We summarize them briefly in Table 3.<sup>19,20</sup> Bullen et al<sup>19</sup> demonstrated that electronic cigarettes deliver nicotine effectively, more rapidly than a nicotine inhaler. In this study, electronic cigarette use significantly reduced

craving, a similar effect to what was observed with a nicotine inhaler. Nicotine delivery and reduction in cigarette craving was much less than with a regular cigarette. Eissenberg<sup>20</sup> found that 10 puffs on one brand of electronic cigarettes delivered a small amount of nicotine, again far less than a tobacco cigarette, whereas another brand delivered little to none. The first brand was able to significantly reduce cigarette craving.

Taken together, this evidence suggests that electronic cigarettes are capable of reducing cigarette craving, but that the effect is not due exclusively to nicotine. Bullen et al observe that ‘the reduction in

in 1 ruyan 16-mg multi-

---

© 2010 Macmillan Publishers Ltd. 0197-5897 Journal of Public Health Policy 1–16 7



Cahn and Siegel

---

Table 3: Studies of the effectiveness of electronic cigarettes in reducing cigarette craving and other nicotine withdrawal symptoms<sup>19, 20</sup>

---

Study

Effect of an E-Cigarette on Cravings and Withdrawal, Acceptability and Nicotine Delivery: Randomized Cross-Over Trial<sup>19</sup>

Electronic Nicotine Delivery Devices: Ineffective Nicotine Delivery and Craving Suppression after Acute Administration<sup>20</sup>

Brand tested

Ruyan

Summary of findings

The 16 mg electronic cigarette delivered nicotine more rapidly than a nicotine inhaler, but less rapidly than cigarettes. Electronic cigarette use significantly reduced craving, but less than cigarettes. The reduction of craving was similar to that observed with

the nicotine inhaler. The electronic cigarettes produced fewer minor side effects than the nicotine inhaler.

After 10 puffs on an electronic cigarette, one of the two brands tested significantly reduced the craving for a cigarette. Nicotine delivery was found to be minimal.

---

desire to smoke in the first 10min[utes] of [electronic cigarette] use appears to be independent of nicotine absorption' (p. 100).<sup>19</sup> The sizable craving reduction achieved by the 'placebo' – a nicotine-free electronic cigarette – demonstrates the ability of physical stimuli to suppress cravings independently.<sup>19</sup> Many studies have established the ability of denicotinized cigarettes to provide craving relief.<sup>21,22</sup>

Barrett<sup>21</sup> found that denicotinized cigarettes reduce cravings more than a nicotinized inhaler, supporting Buchhalter et al's<sup>22</sup> conclusion that although some withdrawal symptoms can be treated effectively with NRT, others, such as intense cravings, respond better to smoking-related stimuli.

Although more research is needed before we will know how effective electronic cigarettes are at achieving smoking abstinence, there is now sufficient evidence to conclude that these products are at least capable of suppressing the urge to smoke. There is also reason to believe that they offer an advantage over traditional nicotine delivery devices '[t]o the extent that non-nicotine, smoking-related stimuli alone can suppress tobacco abstinence symptoms indefinitely' (p. 556).<sup>22</sup>



---

## The Most Common Arguments against Harm Reduction

Our review of the existing literature identified five primary arguments against harm reduction as a tobacco control strategy. These arguments explain why, in the past, harm reduction has not been accepted as a tobacco control strategy.

Promotion of safer alternatives will inhibit smoking cessation/

prevention efforts

The core fear is that smokers who might otherwise have quit smoking altogether will instead become addicted to another harmful product. In addition, a product that reduces harm to the individual may attract new, nonsmoking users, and thus undermine efforts to prevent tobacco use.<sup>23</sup>

Skepticism about the role of combusted products in harm reduction

The argument here, based on numerous related concerns, is that the combustion of tobacco produces inherently dangerous exposures and thus the search for a 'safer' cigarette is futile. It is impossible to assess the risks of a new product using machine measured delivery of smoke constituents, because there is no good way to simulate actual smoking behavior.<sup>23</sup> We cannot, moreover, easily infer human risk from chemical measurements because no reliable toxicity indices exist.<sup>24</sup> A widespread school of thought in tobacco control holds that the very nature of tobacco combustion precludes safer cigarettes, and therefore attempts to develop them should be abandoned.<sup>25</sup>

Alternatives promoted as safer may prove more dangerous, or they may be equally dangerous, leading to false or unsupported claims and to the misleading of the public

Experience with potentially reduced exposure products in the past has revealed that products promoted by the tobacco industry as potentially safer have ended up either not being safer or resulted in increased toxicant exposures.<sup>23</sup> In particular, a broad consensus within the public health community holds that 'light' cigarettes



---

misled consumers into thinking that they were being exposed to lower levels of toxic chemicals.<sup>26</sup> Smokers ended up compensating for the reduced nicotine in 'lights' by smoking with greater frequency and



intensity, resulting in higher exposures than originally reported.<sup>23</sup>

NRT has not been effective, meaning that harm reduction equals harm maintenance

Pierce<sup>27</sup> argued that using NRT for tobacco harm reduction is, in fact, harm maintenance because NRT is so ineffective that it essentially ensures that Big Tobacco (the large tobacco industry companies) will not lose its customers. Smokers simply do not like products that merely deliver nicotine, and therefore ‘we should not assume that smokers would be willing and able to substitute a nicotine maintenance product for their cigarette smoking’ (p. S54).

Big Tobacco cannot be trusted to develop and market a safer tobacco alternative

The final argument is that the tobacco companies, based on their history of lies and deception, simply cannot be trusted to develop and market a safer tobacco alternative.<sup>28</sup> Fairchild and Colgrove<sup>28</sup> make a related point, that ‘prioritizing the reduction of harm, however great or minimal, may necessitate some level of cooperation with the tobacco industry and will certainly prove lucrative for it’ (our emphasis added, p. 201) Thus, tobacco harm reduction will necessarily benefit the tobacco industry regardless of what else might be achieved.

## Analysis of Arguments in Light of the Emergence of Electronic Cigarettes

With the emergence of electronic cigarettes, the harm reduction debate in tobacco control has changed. We now address the five major arguments against harm reduction in light of the emergence of electronic cigarettes.



---

## Promotion of safer alternatives will inhibit smoking cessation/ prevention efforts

In contrast to reduced risk cigarettes or smokeless tobacco products, electronic cigarettes are not tobacco products. Thus, switching to electronic cigarettes is not an alternative to smoking cessation, but rather a form of smoking cessation akin to long-term use of NRT. Moreover, because ‘low absolute abstinence rates suggest that nicotine alone may not be sufficient to suppress y abstinence symptoms effectively’ (p. 551),<sup>22</sup> higher abstinence rates are likely to obtain from a product that better addresses these symptoms. Crucially, electronic cigarettes could entice smokers who were not otherwise inclined, to attempt to quit. Although the use of electro- nic cigarettes by nonsmokers is a theoretical concern, there is no existing evidence that youths or nonsmokers are using the product. Regulations can address the sale and marketing of these products to minors.

Skepticism about the role of combusted products in harm reduction

Electronic cigarettes, such as NRT, are not tobacco products and no combustion takes place.

Alternatives promoted as safer may actually be equally or more dangerous

Thus far, none of the more than 10000 chemicals present in tobacco smoke,<sup>4</sup> including over 40 known carcinogens, has been shown to be present in the cartridges or vapor of electronic cigarettes in anything greater than trace quantities. No one has reported adverse effects, although this product has been on the market for more than 3 years. Still, the FDA struck a more ominous tone in its July 2009 press release, warning of the presence of carcinogens at ‘detectable’ levels.<sup>29</sup> Yet it failed to mention that the levels of these carcinogens was similar to that in NRT products (Table 2). Whereas electronic cigarettes cannot be considered safe, as there is no threshold for carcinogenesis, they are undoubtedly safer than tobacco cigarettes.

---



---

## NRT is unappealing and ineffective

Pharmaceutical products for dispensing nicotine are unappealing ‘by design’ (p. S123)<sup>30</sup> to avoid ‘abuse-liability’.<sup>30</sup> Electronic cigarettes, on the other hand, were designed with the express purpose of replicating the act of smoking, without using tobacco.<sup>31</sup> An investment newsletter reports that demand thus far has been explosive.<sup>32</sup> Intense consumer interest in electronic cigarettes has already spawned a vibrant online community of ‘vapers’ who compare and contrast the performance of various brands and models according to their durability, battery life, thickness of vapor, and other criteria.<sup>33</sup> No non-tobacco nicotine product has heretofore elicited such dedication among its users, suggesting the rare promise of the electronic cigarette as a smoking cessation tool.

## Big Tobacco cannot be trusted

Electronic cigarettes are not tobacco products and not produced by tobacco companies. They were invented in Beijing by a Chinese pharmacist Hon Lik, whose employer, Golden Dragon Holdings, ‘was so inspired that it changed its name to Ruyan (meaning “like smoke”) and started selling abroad’.<sup>31</sup> Rather than being helpful to cigarette makers, electronic cigarettes compete directly against them.<sup>32</sup> Thus David Sweanor, adjunct law professor specializing in tobacco control issues at the University of Ottawa, says they are ‘exactly what the tobacco companies have been afraid of all these years’.<sup>31</sup>

## Conclusion

Tobacco cigarettes are the leading cause of disease in the United States, which is why the ‘primary goal of tobacco control is to reduce mortality and morbidity associated with tobacco use’ (p. 326).<sup>23</sup> Electronic cigarettes are designed to mitigate tobacco-related disease by reducing

cigarette consumption and smoking rates. The evidence reviewed in this article suggests that electronic cigarettes are a much safer alternative to tobacco cigarettes. They are likely to improve upon the efficacy of traditional pharmacotherapy for smoking cessation.

In light of this evidence, it is unfortunate that in the United States, the American Cancer Society, American Lung Association, American

---

12

© 2010 Macmillan Publishers Ltd. 0197-5897 Journal of Public Health Policy 1–16



Electronic cigarettes as a harm reduction strategy for tobacco control

---

Heart Association, Campaign for Tobacco-Free Kids, Action on Smoking and Health, American Legacy Foundation, American Academy of Pediatrics, and the Association for the Treatment of Tobacco Use and Dependence have all issued statements supporting FDA efforts to take them off the US market.<sup>34</sup> In the United States, the courts will ultimately determine whether the FDA has the legal authority to do this, but we question the ethical and health policy merits of this approach.

Do products with established user bases warrant a different regulatory approach than entirely new products? This would seem to follow from consistent application of the principal of nonmaleficence – ‘do no harm.’ Products yet to enter the market have only potential beneficiaries, people who can only speculate about what the precise therapeutic effects of the product will be for them. In contrast, products already on the market have users who may already be deriving benefits. By definition, enacting a ban will harm current users, unless the evidence suggests that the harms outweigh the benefits for those already using the product. The burden of proof is on the regulatory agency to demonstrate that the product is unreasonably dangerous for its intended use.

How does this principle apply to electronic cigarettes? For the many vapers who report using them in place of cigarettes,<sup>33</sup> the benefits of the

product are readily observable, already established. Simply demonstrating that electronic cigarettes are ‘not safe’ may not be sufficient grounds to ban them. Unless the evidence suggests that vaping does not yield the anticipated reduction in harm to the user, enacting an electronic cigarette prohibition will do harm to hundreds of thousands of vapers already using electronic cigarettes in place of tobacco ones – a clear violation of nonmaleficence.

The essential rationale for the FDA’s pre-market approval process – to keep dangerous products out of the marketplace – may not easily extend to new nicotine products because a range of extraordinarily deadly nicotine products is already grandfathered into the market. This has led to an awkward nicotine regulatory structure where dirty tobacco products face few barriers to market entry whereas cleaner products are subject to oft onerous hurdles. The FDA contends that they can and should regulate electronic cigarettes as ‘drug-device combinations’ that are required to meet stringent Federal Food Drug and Cosmetic Act (FDCA) safety standards. The FDA reasons that

---

© 2010 Macmillan Publishers Ltd. 0197-5897 Journal of Public Health Policy 1–16 13



Cahn and Siegel

---

electronic cigarettes do not qualify for the usual exemption from FDCA standards afforded to most other recreational nicotine products because ‘much less is known about the safety of E-Cigarettes’ and ‘it may be possible for E-Cigarettes to satisfy the FDCA’s safety, effectiveness, and labeling requirements and obtain FDA approval’ (p. 26).<sup>35</sup> Ironically, the only nicotine products exempted from FDCA safety requirements are those that are too obviously harmful to have any chance of meeting these requirements. Litigation presently before the US Court of Appeals for the District of Columbia may ultimately determine whether the FDA can legally regulate electronic cigarettes as drug-device combinations.<sup>36</sup> Regardless of the court’s decision, we believe a better regulatory approach would not actively discourage producers of harm reduction products.

Fairchild and Colgrove<sup>28</sup> conclude that ‘the later history of tobacco industry deception and manipulation was an important factor contributing to the erosion of public health support for harm reduction’ (p. 201). With entrenched skepticism toward harm reduction now manifested as deep cynicism about electronic cigarettes – a distinct product that actually does reduce risk and threatens cigarette makers – the tobacco industry is ironically benefiting from its own past duplicity. The push to ban electronic cigarettes may repeat the mistakes of the past in the name of avoiding them. Regulatory policy for electronic cigarettes and other novel nicotine products must be guided by an accurate understanding of how they compare to tobacco cigarettes and NRT in terms of reducing toxic exposures and helping individual smokers quit.

### About the Authors

Zachary Cahn is a graduate student in the political science department at the University of California at Berkeley. His research focuses on the political determinants of substance control policies.

Michael Siegel is a professor of community health sciences at Boston University School of Public Health, where he has studied tobacco epidemiology and public policy and evaluated tobacco-related policies at national, state, and local levels.



---

### References

1. Alderman, J., Dollar, K.M. and Kozlowski, L.T. (2010) Commentary: Understanding the origins of anger, contempt, and disgust in public health policy disputes: Applying moral psychology to harm reduction debates. *Journal of Public Health Policy* 31(1): 1–16.
2. Des Jarlais, D.C., McKnight, C., Goldblatt, C. and Purchase, D. (2009) Doing harm reduction better: Syringe exchange in the United States. *Addiction* 104(9): 1441–1446.

3. Ditter, S.M., Elder, R.W., Shults, R.A., Sleet, D.A., Compton, R. and Nichols, J.L. (2005) Effectiveness of designated driver programs for reducing alcohol-impaired driving: A systematic review. *American Journal of Preventive Medicine* 28(Suppl. 5): 280–287.
4. Rodgman, A. and Perfetti, T.A. (2009) *The Chemical Components of Tobacco and Tobacco Smoke*. Boca Raton, FL: CRC Press.
5. Westenberger, B.J. (2009) *Evaluation of e-Cigarettes*. St Louis, MO: Department of Health and Human Services, Food and Drug Administration, Center for Drug Evaluation and Research, Division of Pharmaceutical Analysis, <http://truthaboutecigs.com/science/2.pdf>, accessed 16 March 2010.
6. Laugesen, M. (2008) *Safety Report on the Ruyan e-Cigarette Cartridge and Inhaled Aerosol*. Christchurch, New Zealand: Health New Zealand, <http://www.healthnz.co.nz/RuyanCartridgeReport30-Oct-08.pdf>, accessed 16 March 2010.
7. Laugesen, M. (2009) *Ruyan E-cigarette Bench-Top Tests*. Christchurch, New Zealand: Health New Zealand, <http://www.healthnz.co.nz/DublinEcigBenchtopHandout.pdf>, accessed 16 March 2010.
8. Alliance Technologies LLC (2009) *Characterization of Liquid “Smoke Juice” for Electronic Cigarettes*. Monmouth Junction, NJ: Alliance Technologies LLC, <http://truthaboutecigs.com/science/4.pdf>, accessed 16 March 2010.
9. Coulson, H. (2009) *Analysis of Components from Gamucci Electronic Cigarette Cartridges, Tobacco Flavour Regular Smoking Liquid*. Lancashire, UK: Blackburn MicroTech Solutions, <http://truthaboutecigs.com/science/7.pdf>, accessed 16 March 2010.
10. Exponent. (2009) *NJOY e-Cigarette Health Risk Assessment*. Menlo Park, CA: Exponent, <http://truthaboutecigs.com/science/5.php>, accessed 16 March 2010.
11. Alliance Technologies LLC. (2009) *Characterization of Regal Cartridges for Electronic Cigarettes*. Monmouth Junction, NJ: Alliance Technologies LLC, <http://truthaboutecigs.com/science/8.pdf>, accessed 16 March 2010.
12. Alliance Technologies LLC. (2009) *Characterization of Regal Cartridges for Electronic Cigarettes – Phase II*. Monmouth Junction, NJ: Alliance Technologies LLC, <http://truthaboutecigs.com/science/9.pdf>, accessed 16 March 2010.
13. Ellicott, M. (2009) *Analysis of Components from “e-Juice XX HIGH 36mg/ml Rated Nicotine Solution” ref S 55434*. Lancashire, UK: Blackburn MicroTech Solutions, <http://truthaboutecigs.com/science/11.pdf>, accessed 16 March 2010.
14. Valance, C. and Ellicott, M. (2008) *Analysis of Chemical Components from High, Med & Low Nicotine Cartridges*. Lancashire, UK: Blackburn MicroTech Solutions, <http://truthaboutecigs.com/science/12.pdf>, accessed 16 March 2010.
15. Alliance Technologies LLC. (2009) *Chemical Composition of ‘Instead’ Electronic Cigarette Smoke Juice and Vapor*. Monmouth Junction, NJ: Alliance Technologies LLC, <http://truthaboutecigs.com/science/13.pdf>, accessed 16 March 2010.
16. Cai, X. and Kendall, M.W. (2009) *Gas Chromatography Mass Spectrometry (GC-MS)*

Analysis Report. Sunnyvale, CA: Evans Analytical Group, <http://truthaboutecigs.com/science/14.pdf>, accessed 16 March 2010.

17. Tytgat, J. (2007) "Super Smoker" Expert Report. Leuven, Belgium: Catholic University of Leuven, <http://truthaboutecigs.com/science/15.pdf>, accessed 16 March 2010.

---

© 2010 Macmillan Publishers Ltd. 0197-5897 Journal of Public Health Policy 1–16 15



18. 19.

20. 21.

22.

23. 24.

25. 26.

27. 28.

29.

30.

31.

32.

33. 34.

35.

36.

Stepanov, I., Jensen, J., Hatsukami, D. and Hecht, S.S. (2006) Tobacco-specific nitrosamines in new tobacco products. *Nicotine & Tobacco Research* 8(2): 309–313. Bullen, C., McRobbie, H., Thornley, S., Glover, M., Lin, R. and Laugesen, M. (2010) Effect of an electronic nicotine delivery device (e cigarette) on desire to smoke and withdrawal, user preferences and nicotine delivery: Randomised cross-over trial. *Tobacco Control* 19(2): 98–103.

Eissenberg, T. (2010) Electronic nicotine delivery devices: Ineffective nicotine delivery and craving suppression after acute administration. *Tobacco Control* 19(1): 87–88. Barrett, S.P. (2010) The effects of nicotine, denicotinized tobacco, and nicotine-containing tobacco on cigarette craving, withdrawal, and self-administration in male and female smokers. *Behavioral Pharmacology* 21(2): 144–152.

Buchhalter, A.R., Acosta, M.C., Evans, S.E., Breland, A.B. and Eissenberg, T. (2005) Tobacco abstinence symptom suppression: The role played by the smoking-related stimuli that are delivered by denicotinized cigarettes. *Addiction* 100(4): 550–559. Zeller, M. and Hatsukami, D. (2009) The strategic dialogue on tobacco harm reduction: A vision and blueprint for action in the



US. Tobacco Control 18(4): 324–332.

Pankow, J.F., Watanabe, K.H., Toccalino, P.L., Luo, W. and Austin, D.F. (2007) Calculated cancer risks for conventional and “potentially reduced exposure product” cigarettes. *Cancer Epidemiology, Biomarkers & Prevention* 16(3): 584–592. Miller, G.H. (1985) The “less hazardous” cigarette: A deadly delusion. *New York State Journal of Medicine* 85(7): 313–317.

Kozlowski, L.T., Goldberg, M.E., Yost, B.A., White, E.L., Sweeney, C.T. and Pillitteri, J.L. (1998) Smokers’ misperceptions of light and ultra-light cigarettes may keep them smoking. *American Journal of Preventive Medicine* 15(1): 9–16. Pierce, J. (2002) Harm reduction or harm maintenance? [Editorial]. *Nicotine & Tobacco Research* 4(Suppl. 2): S53–S54.

Fairchild, A. and Colgrove, J. (2004) Out of the ashes: The life, death, and rebirth of the “safer” cigarette in the United States. *American Journal of Public Health* 94(2): 192–204. US Food and Drug Administration. (2009) FDA and public health experts warn about electronic cigarettes. FDA news release, 22 July, <http://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/ucm173222.htm>, accessed 5 January 2010.

Shiffman, S., Gitchell, J.G., Warner, K.E., Slade, J., Henningfield, J.E. and Pinney, J.M. (2002) Tobacco harm reduction: Conceptual structure and nomenclature for analysis and research. *Nicotine & Tobacco Research* 4(Suppl. 2): S113–S129. Denmick, B. (2009) A high-tech approach to getting a nicotine fix. *Los Angeles Times*, 25 April, <http://articles.latimes.com/2009/apr/25/world/fg-china-cigarettes25>, accessed 3 January 2010.

Mickey, A. (2009) Big tobacco beware, the next big stock story could involve e-cigarettes. *Seeking Alpha*, 12 April, <http://seekingalpha.com/article/130595-big-tobacco-beware-the-next-big-story-stock-could-involve-e-cigarettes>, accessed 2 January 2010. E-cigarette Forum, <http://www.e-cigarette-forum.com/forum/>, accessed 16 March 2010. Siegel, M. The rest of the story: Tobacco news analysis and commentary, <http://tobaccoanalysis.blogspot.com>, accessed 5 January 2010.

Food and Drug Administration. (2009) Brief in Opposition to Motion for Preliminary Injunction. Washington DC: United States Food and Drug Administration, 11 May 2009, <http://www.fda.gov/downloads/NewsEvents/PublicHealthFocus/UCM173191.pdf>, accessed June 2010.

Smoking Everywhere, Inc., et al v. United States Food and Drug Administration, et al (2010) United States Court of Appeals for the District of Columbia Circuit (No. 10-5032).

Cahn and Siegel

---

16

© 2010 Macmillan Publishers Ltd. 0197-5897 *Journal of Public Health Policy* 1–16

DRUPOL-633; No. of Pages 5

# ARTICLE IN PRESS



Available online at [www.sciencedirect.com](http://www.sciencedirect.com)



ScienceDirect

## Abstract

International Journal of Drug Policy xxx (2007) xxx–xxx

## Editorial

# Tobacco harm reduction: How rational public policy could transform a pandemic

---

Nicotine, at the dosage levels smokers seek, is a relatively innocuous drug commonly delivered by a highly harmful device, cigarette smoke. An intensifying pandemic of disease caused or exacerbated by smoking demands more effective policy responses than the current one: demanding that nicotine users abstain. A pragmatic response to the smoking problem is blocked by moralistic campaigns masquerading as public health, by divisions within the community of opponents to present policy, and by the public-health professions antipathy to any tobacco-control endeavours other than smoking cessation. Yet, numerous alternative systems for nicotine delivery exist, many of them far safer than smoking. A pragmatic, public-health approach to tobacco control would recognize a continuum of risk and encourage nicotine users to move themselves down the risk spectrum by choosing safer alternatives to smoking – without demanding abstinence.

© 2006 Elsevier B.V. All rights reserved. *Keywords:* Tobacco; Nicotine; Harm reduction; Cigarette smoking; Policy

## Introduction

In efforts aimed at reducing the risk of death, injury or disease from any behaviour there are four broad areas of possible intervention. These include efforts to prevent the behaviour ever taking place, efforts aimed at ending the behaviour, efforts aimed at preventing the activity from harming third parties and efforts aimed at reducing the risks of those who engage in the behaviour. The interaction

of these four pillars of public health intervention can be seen in everything from pharmaceutical policy, the rules of sport, automobile regulation, workplace safety standards and food processing and preparation regimes.

Interestingly, when dealing with issues of sexual behaviour and the use of licit and illicit drugs there is often strong opposition to efforts aimed at the reduction of risks among those who will engage in the behaviour in question. This schism appears to be the result of a persistent tension between a rational, scientific program and a behavioural, moralistic approach (Brandt, 1987, p. 182).

The conflict over means traces to a fundamental disagreement about aims: Is the purpose of an intervention to make people healthier or safer? Or is it to create better moral souls, to make people less “bad”? The availability of ‘risk reduction’ among accepted interventions can be seen as a

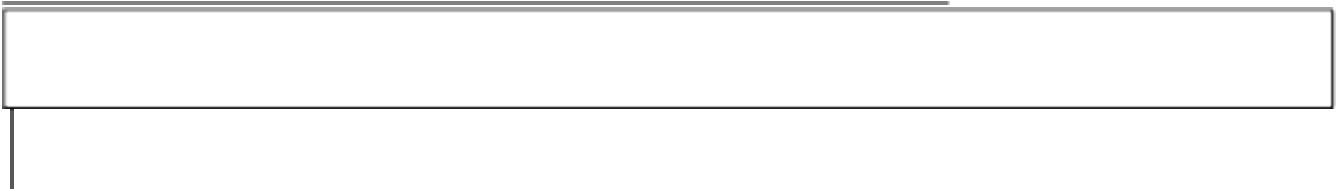
0955-3959/\$ – see front matter © 2006 Elsevier B.V. All rights reserved.  
doi:10.1016/j.drugpo.2006.11.013

key distinguishing feature between scientific public health interventions whose aims are pragmatic, and moralistic ones, whose aims are impossible to measure.

If the goal of public policy interventions on tobacco is to achieve the greatest possible reduction in deaths, injury and disease, then it is necessarily pragmatic. Therefore, it is necessary for policy makers to seriously consider the role of risk reduction for continuing users of tobacco/nicotine products. This does not mean that risk reduction strategies must replace other strategies any more than protection of third parties needs to replace cessation strategies. An ideal public health approach rationally combines the various possible interventions in pursuit of the greatest achievable reduction in deaths, injuries and disease.

### **The case for applying harm reduction strategies to public health interventions on tobacco**

It is estimated that cigarette smoking resulted in the deaths of roughly 100 million people in the last century, and that at current trends in consumption will kill 10 times that many this century (Peto & Lopez, 2001). Roughly half of long-term smokers will die as a direct result of diseases caused by their smoking, and half of those deaths will occur during



Please cite this article in press as: Sweanor, D., et al., Tobacco harm reduction: How rational public policy could transform a pandemic, *International Journal of Drug Policy* (2007), doi:10.1016/j.drugpo.2006.11.013

DRUPOL-633; No. of Pages 5

## ARTICLE IN PRESS

*2 Editorial / International Journal of Drug Policy xxx (2007) xxx–xxx*

middle age. In terms of drug related deaths cigarettes dwarf the toll from other drugs.

The primary reason for smoking cigarettes is to obtain nicotine. The cigarette is an effective – but almost uniquely hazardous – delivery device for the drug, nicotine. As with the use of other drugs the pursuit of nicotine can be attributed to a combination of recreation, addiction and self-medication. The extent of each of these motivations will vary over time and between smokers just as the reasons behind the pursuit of alcohol or caffeine will vary between consumers and change over time.

We stress that nicotine is the primary cause of tobacco consumption. But it is not the nicotine that causes the harm: the inhalation of tobacco smoke is responsible for the pandemic of cancers, heart disease, respiratory diseases and other deadly results of tobacco consumption. Nicotine itself is comparatively benign. A fatal dose of nicotine would require roughly 60 mg for an average person, but, as with a fatal dose of caffeine, such a quantity is far more than is sought or attained by consumers (Fagerstrom, 2005). Were the world's 1.3 billion cigarette smokers acquiring their nicotine from clean delivery systems rather than through repeated inhalation of smoke, nicotine use would likely not rank much higher than caffeine use as a public health priority.

Given the projected death rates associated with smoking and the fact that these deaths can largely be explained by the recognition that 'it's the smoke, stupid', harm reduction interventions are essential. The case for harm reduction is made all the stronger when one considers that there already are various alternatives to cigarettes that are markedly less toxic and clearly acceptable to large numbers of consumers (See Table 1).

In Sweden a smokeless tobacco product known as 'snus' has come to dominate the

tobacco market, with sales rising as cigarette sales have fallen. Many former smokers have switched to snus, far more males use snus than smoke, and snus sales amongst females – which had long lagged male usage – is now evidently growing rapidly. As a result Sweden has the lowest level of tobacco related disease in males among OECD countries, and has reported male smoking prevalence that has now hit single digit percentages in parts of the country.

Table 1 Examples of western world smoke-free alternatives to cigarettes

Transdermal nicotine patch (of various strengths and regimens) Nicotine chewing gum (range of flavours and 2 strengths) Nicotine inhaler ['puffers'] Nicotine nasal spray

Medicinal nicotine lozenges (range of flavours and 3 strengths, including sublingual)

Ultra-low nitrosamine tobacco lozenges [Ariva, Stonewall] Swedish snus Hard tobacco [Oliver Twist] Moist snuff [Skoal, Copenhagen]

Spit-free tobacco pouches Chewing tobacco

Norway and the United States have also in recent years seen a rapid increase in sales of smokeless tobacco products, and these sales trends are ascribed at least in part to growing awareness that non-combustible products are massively less hazardous than smoking (Morgan Stanley Research North America, 2006). Many countries also now have experience with medicinal nicotine (gum, patches, lozenges and 'inhalers') meeting the needs of smokers not just for short-term cessation efforts but for longer term use as a replacement for smoking.

Smokeless tobacco products do cause disease – but at very low rates compared to cigarettes. The disease risk of smokeless tobacco can be made lower still through changes in manufacturing techniques that reduce toxins such as tobacco-specific nitrosamines. It has been estimated that modern smokeless tobacco products are least 90%, and perhaps closer to 99%, less deadly than smoking cigarettes (Levy et al., 2004; RCP, 2002). While there is popular recognition that 'smokeless tobacco causes oral cancer' few recognize that the risk of oral cancer from the sort of high nitrosamine smokeless products that used to be on Western markets (and upon which the oral cancer risk was based) was actually considerably lower than the risk of the disease from smoking. Nor is there widespread recognition that low nitrosamine products such as Swedish snus do not appear to cause oral cancer at all.


Medicinal nicotine products appear to be significantly less hazardous even than smokeless tobacco. These products have been subjected to rigorous evaluation by drug regulatory authorities in many countries and been in use for decades. The major risk of such products is not inherent dangers, but the fact that they are not used at a sufficient dosage for a sufficient length of time and so result in users

reverting to cigarette smoking. In part this underutilization of medicinal nicotine can be attributed to government regulations that restrict the nature and availability of such products out of an expressed concern that there is a potential for 'abuse'. This cautious approach to medicinal nicotine, combined with assorted attacks on tobacco and nicotine that demonize nicotine and fail to distinguish inter-product risks helps to explain why a vast number of smokers incorrectly believe that nicotine itself causes cancer.

Current cigarettes and cigarette-like products are at the high end of a continuum of risk. Moving down the continuum, but still very likely to be high risk are alternative 'cigarette' designs that primarily heat rather than burn tobacco. These products are undoubtedly more hazardous than non-combustion-based delivery, but very likely less hazardous than smoking. Even tinkering with the toxicity levels of cigarettes, through such things as lowering nitrosamine levels in the tobacco leaf, has potential to reduce mortality. Non-combustion products, and particularly low nitrosamine smokeless tobacco and medicinal nicotine products are at the least hazardous end of this risk continuum.

The relative safety of smokeless tobacco and other smoke-free systems for delivering nicotine demolishes the claim that

---



Please cite this article in press as: Sweanor, D., et al., Tobacco harm reduction: How rational public policy could transform a pandemic, *International Journal of Drug Policy* (2007), doi:10.1016/j.drugpo.2006.11.013

---

DRUPOL-633; No. of Pages 5

## **ARTICLE IN PRESS**

abstinence-only approaches to tobacco are rational public health campaigns. This is not to say that all smokers would or should necessarily switch to snus or current forms of medicinal nicotine. But it does mean that cigarettes need not be seen as the only way consumers can obtain their nicotine. This also means that it need not be that the only alternative to continued cigarette smoking must be complete cessation of nicotine in any form.

Alternative nicotine delivery devices will still entail risks. But as nothing in life is devoid of risks it is nonsensical to dismiss an alternative to a tremendously harmful activity by claiming the alternative is not absolutely 'safe', or to claim that the pursuit of a less hazardous alternative implies that the alternative is "virtually harmless" (Gray & Henningfield, 2006).

As more alternatives to conventional cigarettes are considered it is clear that there is a wide range of possibilities on the continuum of risk. The variation of risk among interchangeable products creates a strong basis for regulatory intervention aimed at shaping the market. It should also be the basis for accurate communications to consumers. The fact that alternative products can meet the needs of some significant number of those who would likely otherwise smoke cigarettes also raises key issues about just what sort of products might be available, what sort of information consumers can be given about relative risks and what sort of policy environment could achieve maximum public health benefits through the greatest transition of smokers to less toxic alternatives.

The critical issue in looking at consumer safety, and one that makes tobacco/nicotine an ideal area for harm reduction interventions, is that smokers are capable of moving down the risk continuum when offered alternative products and accurate information on relative risks. A pragmatic goal would be to move current smokers as far down the continuum of risk as possible, without depriving consumers of all choice. The consumer who rejects (or cannot achieve) abstinence but will use a product that reduces risk by 90% should not be prevented from making that preferred choice. Indeed, it is exactly the forced choice between smoking and abstinence that reinforces the current dominance of cigarettes.

### **Fitting harm reduction into existing public health interventions on tobacco**

Comparing tobacco control interventions with efforts that have historically been directed at reducing the toll associated with other potentially dangerous consumer products reveals how tobacco and the harms of smoking it, are positioned in the consumer culture. With products such as food, pharmaceuticals, automobiles, electrical goods, toys, sports equipment and caffeine products, reform movements embraced risk reduction. Though this often came after a fight between pragmatists and 'absolutists' (Young, 1989), the transition was not nearly as drawn out or heated as

is currently the case on tobacco/nicotine. More than 40 years after the U.S. Surgeon General's Report on the Health Consequences of Smoking opened the protracted public-health campaign to stamp out smoking-related disease, no public-health approach to tobacco has emerged that can fully counteract smoking-promoted morbidity and mortality. While many tobacco-control interventions have reduced smoking rates and prevented millions of deaths, that success is

limited: Even today, policy makers refuse to deal directly with the nature of nicotine itself by giving viable alternative delivery systems to smokers. The result is that millions of tobacco users, unable to quit, are not encouraged – or simply not told – that they might be safer by moving down the “risk continuum” to an alternative nicotine-delivery system.

Current debates within tobacco control circles more closely resemble those found on issues such as alcohol, illicit drugs and sexual practices rather than the dangers of consumer items. In regard to substance use and sex, the pragmatism that marks the typical harm-reduction approach to product safety collides with moralistic approaches to human behaviour. The conflicts over drug use, especially in the context of deadly viral infections potentially spread through drug delivery systems (i.e., needle and syringe), are well known. In many countries, battles still rage over what to tell people – especially adolescents – about sex and in particular whether to encourage them to use condoms or simply to abstain from sex outside of marriage. While tobacco use has not yet elicited the same emotional intensity as have concerns about addiction and teen sex, the failure to establish a rational and evidence-based public-health approach to tobacco use can be traced to similar sorts of pragmatism–moralism debates.

And the situation with tobacco might be even more complicated than the debate over illicit drug use. One of the challenges facing tobacco control efforts is that the advocates pushing for social change include both public health pragmatists who are genuinely concerned about reducing tobacco-associated illness and death caused by smoking and moral absolutists whose concern is with the bad habit of substance (nicotine) use. They find common ground on elimination of smoking and doing battle with the tobacco companies. But, as seen in the history of the Pure Food movement in the United States in the 1800s it might be impossible to get absolutists to endorse risk reduction interventions. Those with an abstinence-only view on nicotine (or tobacco) might never change their view regardless of the science, as their views are possibly not actually based on scientific principles any more than the Christian Right’s opposition to condoms is primarily based on science.

Can advocates of change in existing policies work together without undermining each other? If so, how? We see two ways in which efforts to reduce tobacco harms are unusual, even in the context of public-health approaches to use of other substances such as heroin or alcohol.

For one, the nature of the marketplace and the increasingly rapid dissemination of information of interest to consumers will undoubtedly see an acceleration of market changes that



Please cite this article in press as: Sweanor, D., et al., Tobacco harm reduction: How rational public policy could transform a pandemic, *International Journal of Drug Policy* (2007), doi:10.1016/j.drugpo.2006.11.013

DRUPOL-633; No. of Pages 5

## ARTICLE IN PRESS

4 *Editorial / International Journal of Drug Policy xxx (2007) xxx–xxx*

will likely marginalize those tobacco control advocates who adhere to an abstinence-only orientation (Meier & Shelley, 2006). That still leaves those who simply do not yet recognize that risk reduction is, along with prevention, cessation and protection of third parties, one of the four pillars of public health interventions.

The other is that, thus far, tobacco harm reduction has not been backed by the liberal public health establishment. In other contexts, the liberationist and social-justice sentiments of the public-health profession worked in favour of promoting harm-reduction interventions for sex-related harms (condoms) and drug-injection-related harms (syringe exchange), rather than insist that people cease engaging in activities that are potentially risky but impossible to eradicate. To a pragmatist – that is, to the public-health professional – the reason for a behaviour is less important than the fact that the behaviour is going to continue. The public-health profession supported the harm-reduction stance on sex and illicit-drug use even before the safety of those interventions had been established. With tobacco, by contrast, the public-health profession has yet to support tobacco HR despite the strong, consistent, and increasingly extensive evidence that many alternative nicotine delivery systems would be safer than smoking.

An understanding of the public-health profession's position is important, because its voice would sound loud in the policy debate were it to renounce its support of cessation-only approaches. We see two ingredients to the public-health establishment's reluctance to embrace the concept of a continuum of risk and advocate non-cessation approaches for nicotine users.

First, the public-health establishment, at least in the U.S. where much of the policy

fight is centred, is inclined to be distrustful of big business in general and Big Tobacco in particular. Two of the foundations of public health, occupational hygiene and worker safety, were built on direct opposition to industry; another, environmental monitoring and maintenance, has depended on advocacy to overcome industry standards that tolerated pollution. And the collusion of private business with government regulators that has produced serious public-health disasters – the Triangle fire in New York, the Bhopal disaster in India, mad cow disease in the U.K. – increases the profession’s antipathy.

Second, the tobacco industry has played into the hands of its critics by its attempts to suppress information on the harms of smoking and cover up evidence of its own awareness, from early on, that it was making an intrinsically hazardous product.

The paradoxical, and lamentable, outcome of the public-health profession’s anti-industry stance is that government and non-profit public-health agencies will generally not fund the research that would define the continuum of risk for nicotine delivery devices, and thereby allow for rational and evidence-based decision making on behalf of the public’s health. Instead, in the U.S. (whose research budget dwarfs other countries’), virtually the only substantive research

on alternative delivery systems now being carried out is funded by industry: research on smokeless tobacco products is financed by the tobacco companies, and research on nicotine replacement is financed by the pharmaceutical industry. To public-health advocates whose *idé fixe* is that industry is singularly self-interested, venal, and treacherous, these funding streams serve to discredit the researchers who are doing what would, otherwise, be the essential work of determining how best to serve the public’s health. The consequent situation is this tautology: the only nicotine- or tobacco-related research that is recognized as valid is research funded by the government or non-profits; the government and non-profits will fund only research on smoking cessation; only smoking cessation is a valid public-health intervention.


### **Using policy levers to reduce the risk of tobacco/nicotine use**

The potential for tobacco harm reduction interventions is clarified by examining how risk reduction strategies have been applied elsewhere. The long battles to establish regulations pertaining to the manufacturing of food products or to replace ‘snake oil’ with science-based pharmaceutical products offer examples of how advances in science and a proliferation of alternative products can combine with changing corporate vested interests and political pressure to fundamentally ‘morph’ a market. The fundamental change with respect to pure foods and pharmaceuticals did not come with legislation *per se* (e.g., the U.S.’s Food and Drug Act of 1906), but from two broader cultural phenomena: the growth and professionalization of the craft of medicine, and changes in the social contract that


demanded more public responsibility from private manufacturers (with concomitantly expanded compliance by the courts). In America, the medical trade advocated for greater regulation of products having to do with health so that it might dominate the market in health- risk avoidance. The movement for purer foods developed in tandem with awareness of nutritional public health, positioning food regulation across both the medical and consumer arenas. Thus, the role of both the health-care industry and the public-health agencies was essential to the development of policies that reduced food- and prescription-drug-associated harms.

The example of food and pharmaceuticals might be promising for nicotine regulation, since nicotine remains a legal drug and tobacco is a consumer product with recognized appeal. But it also highlights the importance of swaying the medical and public-health professions to embrace harm reduction for nicotine users. And, the need to implement tobacco regulation in ways that will cohere with evidence-based public-health strategies.

There are many regulatory strategies that could be reasonably expected to reduce the present levels of tobacco related morbidity and mortality. A key step would be measures that would put the most hazardous products at the greatest market-



Please cite this article in press as: Sweanor, D., et al., Tobacco harm reduction: How rational public policy could transform a pandemic, *International Journal of Drug Policy* (2007), doi:[10.1016/j.drugpo.2006.11.013](https://doi.org/10.1016/j.drugpo.2006.11.013)



DRUPOL-633; No. of Pages 5

## **ARTICLE IN PRESS**

place disadvantage. As Sweden has long done in dealing with cigarettes versus snus and many other countries have done in dealing with leaded versus unleaded petrol, differential taxation could dramatically change the market. Combustion-based products could be taxed so as to be, for example, at least twice as expensive as non-combustion alternatives. Cigarettes could also be subjected to more rigorous marketing restrictions and package health labelling. In addition, manufacturing standards could require reductions in known toxins without allowing these changes to be used in promotional efforts by the companies in question.

Such efforts would simultaneously promote prevention, cessation, and protection of third parties as well as achieving viable harm reduction for continuing nicotine users.

## Conclusion

We can reduce tobacco related death and disease far more rapidly than we can reasonably expect to reduce nicotine use by focusing on the fact that people smoke for the nicotine but die from the smoke. Applying harm reduction principles to public health policies on tobacco/nicotine is more than simply a rational and humane policy. It is more than a pragmatic response to a market that is, anyway, already in the process of undergoing significant changes. It has the potential to lead to one of the greatest public health breakthroughs in human history by fundamentally changing the forecast of a billion cigarette-caused deaths this century.

## References

- Brandt, A. M. (1987). *No magic bullet: A social history of venereal disease in the United States since 1880*. Oxford University Press.
- Fagerstrom, K. (2005, June). The nicotine market: An attempt to estimate the nicotine intake from various sources and the total nicotine consumption in some countries. *Nicotine & Tobacco Research*, 7(3), 343–350.
- Gray, N., & Henningfield, J. (2006, September 9). Dissent over harm reduction for tobacco. *Lancet*, 368, 899–901.
- Levy, D. T., Mumford, E. A., Cummings, K. M., Gilpin, E. A., Giovino, G., Hyland, A., et al. (2004). The relative risks of a low-nitrosamine smokeless tobacco product compared with smoking cigarettes: Estimates of a panel of experts. *Cancer Epidemiology, Biomarkers & Prevention*, 13, 2035–2042.
- Meier, B., & Shelley, D. (2006, September–October). *The fourth pillar of the framework convention on tobacco control: Harm reduction and the international human right to health* (Vol. 121, pp. 494–500). Public Health Reports.
- Morgan Stanley Research North America. (2006, September 19). *UST: Further from the precipice, but still significant L-T issues*. Morgan Stanley.
- Peto, R., & Lopez, A. D. (2001). Future worldwide health effects of current smoking patterns. In C. E. Koop, C. Pearson, & M. R. Schwarz (Eds.), *Critical issues in global health* (pp. 154–158). San Francisco: Jossey-
- Bass. Tobacco Advisory Group of the Royal College of Physicians (2002). *Protecting smokers, saving lives: The case for a Tobacco and Nicotine Authority*, London.
- Young, J. H. (1989). *Pure food: Securing the Federal Food and Drugs Act of 1906*. Princeton University Press.

David Sweanor

*Faculties of Law and Medicine, University of Ottawa, Canada*

Philip Alcabes\* *School of Health Sciences, Hunter College, City University of New York, United States*


Ernest Drucker

*Montefiore Medical Center/Albert Einstein College of Medicine and Mailman School of Public Health, Columbia University, NY, United States*

\* Corresponding author. Tel.: +1 212 481 5111. *E-mail addresses:* [dsweanor@uottawa.ca](mailto:dsweanor@uottawa.ca) (D. Sweanor), [palcabes@hunter.cuny.edu](mailto:palcabes@hunter.cuny.edu) (P. Alcabes)

4 October 2006

*Editorial / International Journal of Drug Policy xxx (2007) xxx–xxx 5*



Please cite this article in press as: Sweanor, D., et al., Tobacco harm reduction: How rational public policy could transform a pandemic, *International Journal of Drug Policy* (2007), doi:[10.1016/j.drugpo.2006.11.013](https://doi.org/10.1016/j.drugpo.2006.11.013)

**From:** [mailinglist@capitol.hawaii.gov](mailto:mailinglist@capitol.hawaii.gov)  
**To:** [HTHTestimony](#)  
**Cc:** [surfmaster008@gmail.com](mailto:surfmaster008@gmail.com)  
**Subject:** Submitted testimony for SB299 on Feb 10, 2015 09:00AM  
**Date:** Thursday, February 05, 2015 1:51:24 PM

---

**SB299**

Submitted on: 2/5/2015

Testimony for HTH/CPN on Feb 10, 2015 09:00AM in Conference Room 229

| <b>Submitted By</b> | <b>Organization</b> | <b>Testifier Position</b> | <b>Present at Hearing</b> |
|---------------------|---------------------|---------------------------|---------------------------|
| Sean Higa           | Individual          | Oppose                    | No                        |

Comments: Electronic cigarettes DON'T cause cancer and DON'T hurt everybody, and DON'T smell bad. The writer of SB299 is so ignorant to the fact that electronic cigarettes ARE SAFE!

Please note that testimony submitted less than 24 hours prior to the hearing, improperly identified, or directed to the incorrect office, may not be posted online or distributed to the committee prior to the convening of the public hearing.

Do not reply to this email. This inbox is not monitored. For assistance please email [webmaster@capitol.hawaii.gov](mailto:webmaster@capitol.hawaii.gov)

I am submitting personal testimony on SB299 based on my research with adolescents in Hawaii, which is supported by grants from the National Institutes of Health. The comments presented here are my personal testimony and do not necessarily reflect the views of the National Institutes of Health or the University of Hawaii Cancer Center.

SB299 establishes an excise tax on electronic smoking devices (hereafter, e-cigarettes), prohibits their use in places open to the public, and prohibits the sale or furnishing of e-cigarettes to a minor under 21 years of age. The bill proposes that all revenues from the new excise tax would be deposited in a trust fund that supports educational programs.

**I support most elements of this bill** because our research indicates that use of e-cigarettes is prevalent among adolescents in Hawaii. Our recent publication in the medical journal Pediatrics reported that among 9<sup>th</sup> and 10<sup>th</sup> grade students in six Hawaii high schools, 29% have used e-cigarettes at least once and 18% use them regularly. This rate of e-cigarette use by adolescents in Hawaii is considerably higher than rates in current studies of adolescents in other areas of the US. Moreover, our study showed that 12% of the sample used both e-cigarettes and cigarettes.

Our findings indicate that e-cigarettes are popular among adolescents and the majority regard e-cigarettes as healthier than cigarettes. However, using e-cigarettes in most instances exposes adolescents to nicotine, which is a highly addictive substance. Because of the many unknowns about the consequences of e-cigarette use, agencies including the California Department of Public Health, the American Association for Cancer Research, and the American Society of Clinical Oncology have all recently called for more regulation. Because of the clear evidence that e-cigarettes are increasingly regarded by adolescents as acceptable to use and are readily available, I think action is needed now to prevent e-cigarette use by adolescents. This can be done by actions shown to be successful for preventing cigarette smoking by youth, including taxation and restrictions on use in public places. SB299 would help to achieve this goal.

There is one element of the bill that I think needs modification. Having made an effort to read all the current scientific literature on e-cigarettes, I can say that there is still very little known about the consequences of e-cigarette use by adolescents. Research is greatly needed to test specific questions about why e-cigarettes appeal to adolescents and whether using e-cigarettes carries more benefits than risks. Our research has made a start on this and, through being published in a peer-reviewed biomedical journal, has brought national attention to the quality of research being done in Hawaii. However, more needs to be done to gain a better understanding for current scientific questions about e-cigarettes that are not resolved.

For these reasons, I request that part of the revenue from the new excise tax be allocated to the University of Hawaii Cancer Center, to help support the infrastructure that has made our research possible. Our research is funded by Federal grants that we compete for, hence does not cost the State money. In fact our research programs, in addition to gaining more scientific visibility for Hawaii, provide jobs for local citizens--both graduate students and community residents. Supporting the important mission of the UH Cancer Center would help this continue.

**With this modification, I support SB299.**