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To whom it may concern

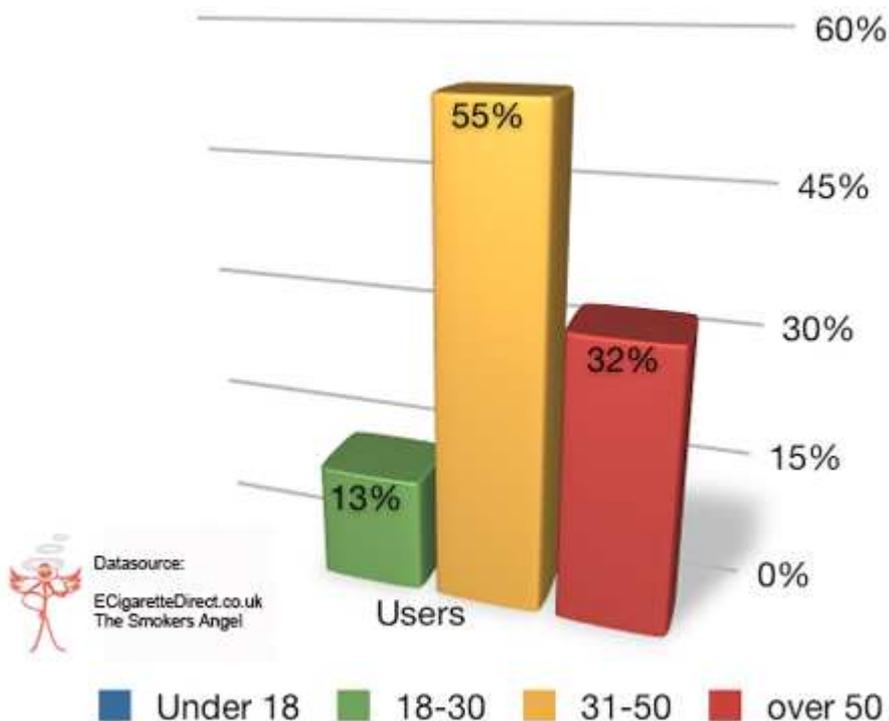
I am writing following the publication of an article entitled "E-cigarette teen popularity prompts concerns" on 12th September 2012 by CBC News Montreal. We feel that, in the interests of your readership, it is important to point out a few relevant facts, so that future reporting may be more accurate.

You report concerns about "the rising popularity of electronic cigarettes with teenagers", yet the vast majority of electronic cigarette users ('vapers') are adult smokers, and former smokers. According to two surveys carried out in the UK, no under 18s use the products, and only a very small percentage of vapers are aged between 18 and 30:

18-20	<input type="checkbox"/>	0	0%
21-30	<input type="checkbox"/>	13	9.03%
31-40	<input type="checkbox"/>	52	36.11%
41-50	<input type="checkbox"/>	45	31.25%
51-60	<input type="checkbox"/>	21	14.58%
61-70	<input type="checkbox"/>	12	8.33%
71-80	<input type="checkbox"/>	1	0.69%
81+	<input type="checkbox"/>	0	0%
		Total: 144 votes	100%

Poll of users ages, UKVapers.orgⁱ

Electronic Cigarette Users: Average Age



Consider also a recently published study from Poland, *USE OF ELECTRONIC CIGARETTES AMONG POLISH ADOLESCENTS AND YOUNG ADULTS*, by Maciej L. Goniewicz, Ph.D.*, Queen Mary University of London, UK; Wioleta Zielinska-Danch, Ph.D. and Andrzej Sobczak, Ph.D., Medical University of Silesia, Poland; Peter Hajek, Ph.D., Queen Mary University of London, UK:

"This study was a part of the Polish national survey of tobacco and nicotine use among adolescents and young adults, conducted in 2010 and 2011. The total of 20,240 secondary and high school students took part (age range 16-24)."

"Results:

"EC use was associated with being male, younger age, living in an urban area, smoking cigarettes, and having a smoking parent or partner."

"Students who tried conventional cigarettes were more likely to try ECs than those who had never smoked (29.5% vs. 3.2%)."

"Conclusions: More than one fifth of Polish students tried EC. ECs may have the potential to compete with the conventional cigarettes. ... Regulation on minors access to ECs should be implemented."ⁱⁱⁱ

Whilst we most certainly do not advocate the sale of electronic cigarette products to minors, and would support a ban for this group, we do not believe that teenagers are flocking to those corner stores to purchase them – they are far too 'geeky-looking' to appeal to teenagers anyway! It is, surely, far more worrying that these kids are able to develop a nicotine addiction by starting to smoke. Despite many years of

restrictions on the sale of tobacco products to minors, many continue to start smoking in their teen years.

You suggest that “[t]he product makes steam similar to tobacco smoke.” This is entirely misleading, since it implies that the ‘steam’ or vapour is as dangerous as tobacco smoke! On the contrary, many public health experts agree that electronic cigarette vapour is orders of magnitude *less* harmful than tobacco smoke. All of the chemicals found in electronic cigarettes, with the possible exception of some of the flavourings (after all, it is impossible to find an absinthe-flavoured tobacco cigarette), are also found in tobacco cigarettes. The electronic cigarettes, however, do *not* deliver carbon monoxide, nitrous oxides or tar, or any of the thousands of other harmful chemicals found in tobacco smoke. They are also approximately 1,000 times lower in tobacco’s cancer-causing chemicals, TSNA’s, having similar levels to ‘approved’ NRT products.

In the video embedded into the article, Flory Doucas of the Quebec Coalition for Tobacco Control suggests that propylene glycol (PG) has properties of antifreeze and is often used in antifreeze. This is true, but this is *technical* grade, as opposed to the *pharmaceutical* grade (NOT ‘food grade’, as suggested) used in eliquid. PG is on the list of Flavour and Extract Manufacturers’ Association (FEMA) ‘GRAS’ products. GRAS means Generally Regarded as Safe. The GRAS assessment programme incorporates the latest scientific advances for evaluating the safety of flavouring substances.

Propylene glycol has been in use since the early 20th century, and was extensively tested over several decades. It is frankly absurd for Ms Doucas to suggest “There are very few studies, if... none showing the long-term effects of this product being inhaled.” If Ms Doucas is going to speak as an expert on this subject, she would do well to do a little research first.

There are several studies specifically on inhalation, and the risks have been determined to be so low that the product is classified as GRAS. Robertson and coworkers (1947) exposed monkeys and rats to atmospheres saturated with PG vapor and found no adverse effects in animals after periods of 12 to 18 months. Studies were done in hospital wards using PG in an air-sterilization application. In these studies, humans were exposed to saturated and super saturated atmospheres for prolonged periods without adverse effects. In one such study in 1971, the uptake of PG mist by humans was studied using a 10% solution in labeled deionized water which was nebulized into a mist tent. No adverse effects were recorded. The Ontario Ministry of Labour’s Health and Safety Support Services Branch issued guidance on propylene glycol in 1991, and recommended a safe exposure limit of 50ppm continuously during working hours.

The reason for the low toxicity of PG is that it is handled by the body using one of the main pathways which the body uses to metabolise glucose, the lactic acid cycle. PG is used in antifreeze because, unlike many of the alternatives, such as diethylene glycol, it is essentially non-toxic.

The statement from Health Canada reads:

“...continues to advise Canadians not to purchase or use electronic smoking products, as these products may pose health risks and have not been evaluated for safety, quality and efficacy....”

To suggest to smokers that they should not use electronic cigarettes is no different from telling a drowning man that he should not use a life raft in case it has a puncture. Health Canada might as well be telling all those smokers who have made the switch to go back to smoking – and for any that might have moved on from smoking to ‘vaping’ to just carry on smoking. If the goal is public health, this cannot make any sense.

Furthermore, your video reports that “selling electronic cigarettes containing nicotine is illegal in Canada”. This is simply not supported by the law. Indeed, Health Canada has been behaving in a rather bizarre way with regard to the sales of electronic cigarette products in Canada, which has (so far) done little more than to muddy the waters. They have attempted to suggest that nicotine is a ‘drug’ or medicine, and yet this would inevitably lead to the patently ridiculous situation of having to classify tobacco products as ‘drug’ or ‘medicinal’ products. In actual fact, according to Canadian law, nicotine does not always have to be classified as a ‘drug’. Since electronic cigarettes are devices intended and sold as alternatives to tobacco cigarettes, they do not fall within the definition of a drug at all as stated in the Food and Drug Act, which states:

“*drug*” includes any substance or mixture of substances manufactured, sold or represented for use in

- (a) the diagnosis, treatment, mitigation or prevention of a disease, disorder or abnormal physical state, or its symptoms, in human beings or animals,
- (b) restoring, correcting or modifying organic functions in human beings or animals, or
- (c) disinfection in premises in which food is manufactured, prepared or kept;ⁱⁱⁱ

Classification as a drug on the basis of an active ingredient would result in coffee, and a wide variety of everyday products, the air we breathe, and even water would also have to be defined as ‘drugs’, which would be patently absurd. Many millions of people around the world enjoy the benefits of caffeine, and nicotine has many similar benefits. The significant problem about enjoying nicotine has always been the delivery method: smoking kills. We know this. Electronic cigarettes offer as ‘clean’ a way of taking nicotine as the cup of coffee delivering caffeine. Both products are subject to regulation under a comprehensive range of laws to ensure that they are indeed of sufficiently high quality and safe when used as intended.

International courts have tested this principle, and every time, it has been demonstrated that electronic cigarette products are not legally-defined as medicinal products (‘drugs’). For your ease of reference, I have provided links below to the various Court rulings:

FDA –vs- NJoy (USA) Court ruling^{iv}

FDA –vs- NJoy (USA) Appeals Court ruling^v

Govt of the Netherlands –vs- Electronic Cigarettes ruling^{vi}

Bundesland North Rhine-Westphalia –vs- SNOKE ruling^{vii}

Saxony-Anhalt –vs- *Redacted electronic cigarette company* ruling^{viii}

The legal definition of a 'drug' in Canadian law is not dissimilar from that of these other territories, so it is not unreasonable to expect that a Canadian court would reach a similar conclusion. Indeed, much of Health Canada's behaviour with regard to the sale of electronic cigarette products has been erratic, inconsistent and entirely unhelpful.

We do share your concerns that Health Canada is "not doing enough to control the product", but our concerns are centred on the fact that there is exists an entirely suitable regulatory 'fit' *outside* of the 'drug' and/or 'medicines' legislation, and yet this is being largely ignored by Health Canada. *All* electronic cigarette products are required, by existing consumer product safety legislation, to undergo stringent quality and safety testing. ECTA is working closely with its members in Canada to ensure that the legal requirements are clearly understood, complied with, and regularly audited.

The sale of electronic cigarette products is covered by the following regulations, and enforced by the Minister of Health, Measurement Canada, Transport Canada, Environment Canada, the Office of Consumer Affairs, Industry Canada, Privacy Canada, Health Canada, and CBSA:

- Consumer Chemicals and Containers Regulations 2001
- Canada Consumer Product Safety Act 2010
- Weights & Measures Act 1985, and Weights & Measures Regulations C.R.C c.1605
- Canadian Electrical Code
- Extended Producer Responsibility programmes
- Criminal Code
- Privacy Act
- Personal Information Protection and Electronic Documents Act
- Canada Occupational Health & Safety Regulations (Canada Labor Code 1985)
- Canada Labor Standards Regulations
- Fair Trading Act
- Various Customs Laws
- etc

These regulations provide a comprehensive framework for ensuring that electronic cigarette products are indeed safe. What is needed is not more regulation, or a new regulatory framework, but there is a pressing need for better enforcement of these existing regulations.

Your article suggests that "the federal health department recommended Canadians not to buy e-cigarettes because they could 'pose health risks'." Fearing that something 'could' pose a health risk is – in this instance – utterly ridiculous, when you think of the alternative, which is to continue smoking. There is not much doubt about the health risks involved with that!

It is highly irresponsible journalism to publicly slur a harm reduction product which is already saving millions of lives. These could save many millions more if smokers were told the truth about their options, but unfortunately, the 'party line' is so often to

suggest that smokers stick to the 'tried and tested methods' rather than switch to using an electronic cigarette.

Professor Michael Siegel of Boston University School of Public Health describes advice to use approved smoking cessation methods, and disregard harm reduction alternatives, as 'irresponsible':

"I find this to be irresponsible advice, because these methods that are 'known to work' actually are quite ineffective, with dismal results in terms of long-term cessation. Advising smokers to stick with the FDA-approved medications is tantamount to advising the overwhelming majority of smokers to continue smoking."^x

Other public health experts agree with Professor Siegel. Dr Gilbert Ross, Medical Director of the American Council on Science and Health (ACSH) said:

"Cessation rates, from utilizing any or all of the standard therapies with medical counseling and follow-up, vary from 5% to 25% at one year.

"Telling people 'quit or die' doesn't seem to be inspiring much quitting. The 'harm reduction' alternatives are the unacknowledged stepchildren of the anti-tobacco movement. These include (a) smokeless tobacco, inspired by the impressive quit rates in Sweden, and (b) the potential delivery of 'clean nicotine' via the e-cigarette. But any possible remedy that uses tobacco to help smokers quit ... is anathema to anti-tobacco zealots. They ignore the plight of smokers who have tried over and over again to quit and keep relapsing."^x

Dr Farsalinos, a Fellow at the Onassis Cardiac Surgery Centre, said: "considering the extreme hazards associated with cigarette smoking, currently available data suggest that electronic cigarettes are far less harmful and substituting tobacco with electronic cigarettes may be beneficial to health."^{xi}

Dr Elizabeth Whelan, President of ACSH commented: "The truth is, the 'approved' methods of smoking cessation have a dismal track record, with success rates less than 15 percent after one year. ... We desperately need better options."^{xii}

An ACSH newsletter reported: "This study's lead researcher recommends that, instead of trying e-cigarettes as a reduced-risk method to quit smoking, smokers should 'stick to the methods that are known to work.' But Dr. Ross criticizes this recommendation. 'He would have more accurately said, "stick to the methods that are known to *not* work," since those currently approved have a 'success' rate of only 5 to 10 percent. It's the old 'quit or die,' abstinence-only agenda."^{xiii}

As these experts have recognised, electronic cigarettes are not in fact intended as a quit smoking product. The reason for the success of the electronic cigarette is that it provides a reduced harm alternative to smoking traditional cigarettes, for those unable or unwilling to forgo nicotine. This is one reason that many in the anti-tobacco movement dislike electronic cigarettes – they view anything that continues to deliver nicotine (with the exception of the products made by their 'friends' in the pharmaceutical industry) as being just as bad as smoking, despite the demonstrated reduction in risk.

One tobacco harm reduction expert, Dr Carl Phillips, put this regrettable and dangerous tendency to deter smokers from switching to low risk nicotine delivery methods, in favour of smoking cessation medicines, in fairly stark terms:

“for the average smoker, smoking for just one more month before quitting causes greater health risk than switching to a low-risk nicotine source and never quitting it. Thus, discouraging a smoker, even one who would have quit entirely, from switching to a low-risk alternative is almost certainly more likely to kill him than it is to save him.”^{xiv}

Do both CBC News and Health Canada *really* want to send out the message that the many thousands of Canadian former smokers, who have switched to using electronic cigarettes – with the demonstrable reduction in risk to themselves and those around them – should immediately abandon their electronic cigarettes and return to smoking tobacco cigarettes? Tragically, this is precisely the message your article is delivering.

It is often suggested that nicotine is the ‘bad guy’ in cigarettes that causes cancer, but there does not seem to be a great deal of evidence to support this, with both the FDA, (who stated: “The reviewed studies do not indicate severe pathological alterations after inhalation of nicotine”^{xv}), and the UK Government, (who consider nicotine to be “a very safe drug”), approving other products for inhaling nicotine, such as the Nicotrol inhaler and the Nicorette inhalator. If nicotine has significant risks associated with it, why are you and others not warning of the risks of these widely-available NRT products? The link between nicotine and cancer is primarily a legacy of the delivery of nicotine through tobacco smoking.

Dr Whelan confirms this: “Again, it’s not the nicotine that’s so dangerous about regular cigarettes, but the toxins and carcinogens in the ‘products of combustion’ — the smoke — that’s inhaled deep into the lungs and then into the general circulation. There’s no reason to think e-cigarettes present the same risks, since there’s no combustion.”^{xvi}

Surely, it behoves all good journalists to do a little research before printing articles. I trust we can expect to see a more accurate – and representative – follow-up article from your publication, at your earliest convenience.

Yours faithfully,

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cc Flory Doucas
Quebec Coalition for Tobacco Control

For your further research, here is some more information about the science behind electronic cigarettes:

The Scientific Facts:

1. What's in the liquid?

ECITA has carried out in excess of 100 tests on e-liquid to date, using GC/MS, with isotope dilution analysis to determine nicotine concentrations. Hundreds of other similar tests have been carried out by those from within the industry, as well as independent government testing. This barrage of tests demonstrates precisely what is in the liquid:

Propylene Glycol (PG) CAS 57-55-6

Vegetable Glycerine (VG or 'Glycerol') CAS 56-81-5

Nicotine CAS 54-11-5

Food-standard flavourings

2. What happens when Propylene Glycol is inhaled?"

Propylene Glycol (PG) has been extensively studied for many years, and has been classified as GRAS (Generally Regarded As Safe)^{xvii}. Consider the following findings:

"General Toxicity Observations

Upon reviewing the available toxicity information, the Agency has concluded that there are no endpoints of concern for oral, dermal, or inhalation exposure to propylene glycol and dipropylene glycol. This conclusion is based on the results of toxicity testing of propylene glycol and dipropylene glycol in which dose levels near or above testing limits (as established in the OPPTS 870 series harmonized test guidelines) were employed in experimental animal studies and no significant toxicity observed."

and

"Carcinogenicity Classification

A review of the available data has shown propylene glycol and dipropylene glycol to be negative for carcinogenicity in studies conducted up to the testing limit doses established by the Agency; therefore, no further carcinogenic analysis is required.

Mutagenicity Potential

Propylene glycol and dipropylene glycol were tested for mutagenic or genotoxic potential and found to be negative in a battery of studies".^{xviii}

"Propylene glycol does not present an acute, chronic, reproductive, or developmental hazard. Acute toxicity is very low, with LD50 values exceeding 19000 mg/kg after ingestion or skin contact. It is not a skin or eye irritant, and does not cause sensitization. The weight of the evidence indicates that it is not genotoxic in vitro or

in vivo. Adequate long-term feeding studies are available which indicate that it does not represent a cancer hazard."^{xix}

3. "What about vegetable glycerine?"

VG is also classified as GRAS.^{xx}

"Glycerol is free from structural alerts, which raise concern for mutagenicity. Glycerol does not induce gene mutations in bacterial strains, chromosomal effects in mammalian cells or primary DNA damage in vitro."

"...the weight of evidence indicates that glycerol is of low toxicity to aquatic organisms and this conclusion is supported by QSAR predictions. The lowest LC50 for fish is a 24-h LC50 of >5000 mg/l for *Carassius auratus* (Goldfish) and for aquatic invertebrates, a 24h EC50 of >10000 mg/l for *Daphnia magna* is the lowest EC50."

"The weight of evidence indicates that glycerol is of low toxicity when ingested, inhaled or in contact with the skin."

"For occupational exposure to glycerol mist, typically an exposure limit is applied based on the low toxicity of the aerosol. This value is 10 mg/m³ as an 8-hour time weighted average. (Belgium, Netherlands, Ireland, USA, UK)."

"It has a calculated half-life for photo-oxidation of ~7 hours and is not susceptible to hydrolysis. The experimental data indicate that glycerol is readily biodegradable under aerobic conditions."

"No further work is indicated, because of the low hazard potential of this substance."^{xxi}

4. "The liquid contains 18% nicotine."

This is, quite simply, a miscalculation.

Cartridges and e-liquid for electronic cigarettes often contain 18mg/ml, but this is **1.8%, not 18%**.

Due to a 'quirk' in the *système internationale* (SI) for weights and measures, the measurement of a litre does not 'fit' into this system. This means that it is quite common for mistakes to occur, as the size of the units is not the same, despite having the same prefix (milli, or thousandth).

One millilitre is a cubic centimetre (or cm³, which equates to one millionth of a cubic meter, the SI unit for volume) with a mass of around 1g (the exact value depends on the liquid in question). This means that a value in mg/ml is roughly equivalent to milligrams per gram, rather than the milligrams per milligram that a quick glance would lead you to assume.

This means that for a solution to contain 18% nicotine, it would have to have **180mg/ml**.

5. "But nicotine is highly toxic."

For a child, nicotine is toxic at a level of 10mg in total.^{xxii}

For an adult non-smoker/non-nicotine addict, nicotine is toxic at a level of 30-60mg (0.5-1mg/kg).^{xxiii}

This is precisely why ECITA has been working with its members across Europe to ensure that the correct hazard symbols, and risk and safety phrases are printed on the labels, and that electronic cigarette liquid be supplied in child-resistant containers, in accordance with the EU General Product Safety Regulations *et al*.

Despite the potential hazards of nicotine itself, the MHRA describes it as "a very safe drug". With the correct risk and safety phrases, appropriate warning symbols, and child-resistant packaging, there can be no justification for restricting adult consumers' access to electronic cigarette liquid.

The EU regulations with regards to Chemical Labelling and Packaging are sufficiently robust to allow adult consumers to handle household bleach, oven cleaner and other unpleasant chemical substances, and store such products in their homes for use, despite their far more noxious chemical content; there is no reason to suppose that these regulations would not be sufficiently robust to protect public health and safety where electronic cigarette products are concerned.

6. "What about passive 'vaping'?"

There is no risk from inhaling the vapour directly, so there can be no concern about inhaling it as side-stream vapour.

"Permissible Exposure Limit (PEL)

The current OSHA (Occupational Safety and Health Administration, USA) standard for nicotine is 0.5 milligram of nicotine per cubic meter of air (mg/m³) averaged over an eight-hour work shift.^{xxiv} The EU PEL is the same.^{xxv}

(These studies are still relevant, despite their dates. Consider the fact that the EU PEL was copyrighted as "IPCES, CEC 2005". These studies have not been repeated or updated because the chemical profiles of the compounds under consideration have not changed in the intervening years.)

If we assume, for the sake of argument, that none of the nicotine vapourised is absorbed on inhalation, then to fill a 10m³ room (not a very big room at all!), you would need to vapourise 5mg of nicotine all at once. Any PEL has to be at a level at which there is no observable effect on anyone or anything, otherwise it would not be deemed a 'permissible exposure limit'.

Nicotine oxidises readily, so to exceed the PEL, you would have to **continuously** vapourise 5mg of nicotine, and maintain that level in order for the PEL to be

exceeded. This is simply not possible with existing ecig technology, nor is it desirable, so such technology is unlikely to be forthcoming.

7. "What about the risk of overdose?"

Vaping is broadly similar to smoking, and offers the same flexibility as to how much consumers consume.

The habit of vaping directly replaces the habit of smoking, and includes the natural (and often subconscious) self-regulation of nicotine intake: as a smoker reaches the limit of their own individual nicotine tolerance level, they are naturally induced to slow down or stop for a while before smoking again. Vaping works in precisely the same way.

Let us consider a 'worst case scenario':

The highest level of eliquid used by most vapers is 36mg/ml or 3.6%. (This is in the UK, where the highest level allowed is 7.5% (or 75mg/ml), according to the UK Poisons Act. Other EU countries such as Greece and France have a lower level of 2% (20mg/ml).) A 'heavy user' might consume 3ml over the course of a day. This means that this individual will have consumed a total of 108mg over the course of the day. If we assume a 'day' to mean 18 hours, this would be equal to 6mg per hour, or 6.75mg/hour over a 16 hour day, assuming 8 hours for sleep.

The indications for the Nicorette Inhaler suggest that the maximum recommended dose of nicotine over a 24 hour period is 160mg:

"NICORETTE® Inhaler Nicotine 10 mg"

"For best results 6-12 cartridges should be used per day"^{xxvi}

with Pfizer suggesting:

"a maximum of 16 cartridges daily"^{xxvii}

Nicotine has an elimination 'half life' of 100-150 minutes, according to 6 studies analysed and referenced in 'Pharmacological Reviews'.^{xxviii}

This means that nicotine is rapidly eliminated from the body with concentration dropping by half every 2 hours (approximately).

8. "Electronic cigarettes contain cancer causing chemicals."

Yes, they do – at comparable levels (i.e. not dangerous levels) to those found in existing NRT products.

The levels of TSNAs (Tobacco-Specific Nitrosamines) detected by the FDA (back in May 2009) were too low to allow them to be quantified (i.e. they were too low for the actual amount present to be identified), but it was less than 0.0000021%. Indeed, the TSNAs detected by the FDA were **below** the level set for the Nicotrol Inhaler (which is approved for use worldwide). In its press release, the FDA made much of

the fact that the Nicotrol Inhaler was used as a control. However, the level of TSNA's in the inhaler was not actually tested, making it of very limited use as a control for this test.^{xxix}

This omission led the manufacturer of the product tested to commission an independent third-party analysis of the FDA's testing procedure for this so-called 'scientific research'. This analysis – by a well-established company with accredited expertise – was very critical of both the methods used and the conclusions drawn, particularly with regard to TSNA levels.^{xxx}

Indeed, a number of studies^{xxxi} have found that the levels in medicinal NRT products and electronic cigarettes are comparable, yet no one has seen fit to alert the media so that the public can be warned about the 'dangers' of using NRT. According to public health physician, and respected international expert, Professor Dr Michael Siegel, MPH, MD:

"Had the FDA acted in an objective manner – it would have had to also urge the public not to use nicotine replacement products, since they have carcinogens in them."^{xxxii}

The comparable levels of TSNA's are not surprising – both NRT and electronic cigarettes use pharmaceutical grade nicotine (being the highest grade available in quantity) sourced from tobacco plants. It is hard to see it as anything other than deliberate misinformation that the FDA chose not to include this vitally important fact in its press release.

In a study carried out in 2010, Professor Dr Siegel from Boston University argued that what we do know of e-cigarettes is already enough to conclude that they are far safer than real cigarettes. He says: "The truth is we know a lot more about what is in electronic cigarettes than in regular cigarettes. Our review shows that carcinogen levels in electronic cigarettes are up to 1,000 times lower than in tobacco cigarettes."^{xxxiii}

9. "What if non-smokers start using electronic cigarettes and become addicted to nicotine?"

Catherine Nissen, formerly of TobaccoHarmReduction.Org, wrote an article in association with research carried out by her colleague, Dr Carl Phillips:

"One of the oft-repeated pseudo-arguments against the promotion of low-risk alternative nicotine products is that people who are interested in nicotine (that is, benefit from it in some way) but that have chosen not to smoke because of its detrimental health effects will start to use these low-risk products upon learning that they are, indeed, low-risk. These new users are not a problem, however, based on the views of most people – including most ethicists and policy analysts – that favor humanitarian concerns over the elimination of drug use for its own sake. Every such new user represents a win from the welfare perspective, since the provision of accurate information regarding the relative risks of products has allowed a person to make a rational choice to start consuming (and enjoying) something they otherwise would not have. In other words, it has provided a welfare improvement for someone who makes the rational judgment that the benefits exceed the costs. I am one such person."^{xxxiv}

Dr Phillips' research, *Debunking the claim that abstinence is usually healthier for smokers than switching to a low-risk alternative, and other observations about anti-tobacco-harm-reduction arguments* finds that:

"for the average smoker, smoking for just one more month before quitting causes greater health risk than switching to a low-risk nicotine source and never quitting it. Thus, discouraging a smoker, even one who would have quit entirely, from switching to a low-risk alternative is almost certainly more likely to kill him than it is to save him."^{xxxv}

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- i <http://ukvapors.org/polls.php?action=showresults&pid=12>
- ii <http://www.srn-teurope.org/assets/Abstract-Book-Final.pdf>
- iii <http://laws-lois.justice.gc.ca/eng/acts/F-27/page-1.html>
- iv <http://casaa.org/uploads/SE-vs-FDA-Ruling.pdf>
- v http://casaa.org/uploads/ct_app_judgement_on_injunction.pdf
- vi Rechtspraak.nl - LJN: BV8613
- vii <http://www.wahrheit-ueber-ezigaretten.de/images/stories/pdf/OVG-LSA-20120605.pdf>
- viii <http://www.tobaccoanalysis.blogspot.co.uk/2012/01/new-study-shows-that-in-contrast-to.html>
- ix http://www.acsh.org/factsfears/newsID.1242/news_detail.asp
- x http://www.acsh.org/factsfears/newsID.1242/news_detail.asp
- xi <http://www.noodles.com/viewNoodle/15626744/esc---european-society-of-cardiology/electronic-cigarettes-do-not-damage-the-heart>
- xii http://www.acsh.org/healthissues/newsID.1913/healthissue_detail.asp
- xiii http://www.acsh.org/factsfears/newsID.3305/news_detail.asp
- xiv <http://www.harmreductionjournal.com/content/pdf/1477-7517-6-29.pdf>
- xv http://www.accessdata.fda.gov/drugsatfda_docs/nda/97/20714_NICOTROL%20INHALER%2010MG,%20CARTRIDGE_PHARMR.PDF
- xvi http://www.acsh.org/healthissues/newsID.1913/healthissue_detail.asp
- xvii <http://www.fda.gov/Food/FoodIngredientsPackaging/GenerallyRecognizedasSafeGRAS/GRASSubstanceSFCOGRASDatabase/ucm261045.htm>
- xviii http://www.epa.gov/oppsrrd1/reregistration/REDs/propylene_glycol_red.pdf
- xix <http://www.inchem.org/documents/sids/sids/57-55-6.pdf>
(Inchem is part of the International Program on Chemical Safety, a co-operative effort between international chemical safety and occupational health bodies.)
- xx <http://www.fda.gov/Food/FoodIngredientsPackaging/GenerallyRecognizedasSafeGRAS/GRASSubstanceSFCOGRASDatabase/ucm260418.htm>
- xxi <http://www.inchem.org/documents/sids/sids/56815.pdf>
- xxii <http://www.inchem.org/documents/pims/chemical/nicotine.htm#DivisionTitle:7.2.1.2%20Children>
- xxiii <http://www.inchem.org/documents/pims/chemical/nicotine.htm#DivisionTitle:7.2.1.1%20Adults>
- xxiv <http://www.cdc.gov/niosh/docs/81-123/pdfs/0446.pdf>
- xxv <http://www.inchem.org/documents/icsc/icsc/eics0519.htm>
- xxvi <http://www.medsafe.govt.nz/profs/datasheet/n/Nicoretteinh10mg.pdf>
- xxvii http://www.pfizer.com/files/products/uspi_nicotrol_inhaler.pdf
- xxviii <http://pharmrev.aspetjournals.org/content/57/1/79/T2.expansion.html>
- xxix <http://www.fda.gov/downloads/Drugs/ScienceResearch/UCM173250.pdf>
- xxx http://casaa.org/uploads/Exponent_Response-to-the-FDA-Summary.pdf
- xxxi <http://tobaccoanalysis.blogspot.co.uk/2009/07/comparison.html>
- xxxii <http://tobaccoanalysis.blogspot.co.uk/2009/07/disingenuousness-of-fdas-press.html>
- xxxiii <http://sph.bu.edu/insider/Recent-News/evidence-suggests-e-cigs-safer-than-cigarettes-researcher-claims.html>
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