



**Testimony Regarding Electronic Cigarettes,
HB5449: An Act Prohibiting the Use of Electronic Cigarettes in the Same Places Where
Smoking is Prohibited
HB6283: An Act Regulating Electronic Cigarettes
HB6290: An Act Limiting the Advertising of Electronic Nicotine Delivery Systems**

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My name is Dr. Pat Checko. I am a member of the Board of the MATCH Coalition (Mobilize Against Tobacco for Connecticut's Health). I am here to express our support for these bills and to applaud the Public Health Committee on your efforts to regulate the use of this latest controversial product intended to lure users into believing they are safe (or at least safer than cigarettes) and can help you quit smoking. I hope that by the end of my testimony you will agree that the industry's current claims are the same smoke and mirrors they used for almost 50 years to deny that cigarettes were dangerous to your health.

The last thing in the world that the industry wants is for states to define electronic nicotine delivery systems (ENDS), regardless of what they are called, as tobacco products. Clearly, this classification puts them in the same category as traditional cigarettes and other tobacco products that can be regulated, restricted and taxed by the state. ENDS were initially imported from China and distributed online by independent companies. Since their entry into the market in the first decade of 2000, they have evolved rapidly and have become more available and sophisticated as the market has boomed. Today, there are more than 460 brands and over 7,700 flavors available on the internet. Third generation devices (personal vaporizers) are typically sold in "vape shops" or "vape lounges". A fourth generation "digital" delivery device became available earlier this year. Let us not be lured into believing these ENDS products are anything more than the 21st century cigarette, that was also a novelty when it was first manufactured, modified and adulterated.

What's in a name?

The cornerstone of the industry's argument against regulation and classification as a tobacco product is that it contains no tobacco – just nicotine in liquid form. Let's do a quick reality check. Here are a few definitions of the word nicotine from a chemical, dictionary and medical perspective.

- A toxic colorless or yellowish oily liquid that is the chief active constituent of tobacco. It acts as a stimulant in small doses, but in larger amounts blocks the action of autonomic nerve and skeletal muscle cells. Nicotine is also used in insecticides.
- A colorless, poisonous alkaloid, $C_{10}H_{14}N_2$, derived from the tobacco plant and used as an insecticide. It is the substance in tobacco to which smokers can become addicted.
- **Nicotine:** An alkaloid (a nitrogen-containing chemical) made by the tobacco plant or produced synthetically. Nicotine has powerful pharmacologic effects (including increased heart rate, heart stroke volume, and oxygen consumption by the heart muscle), as well as powerful psychodynamic effects (such as euphoria, increased alertness, and a sense of relaxation). Nicotine is also powerfully addictive. (Medline)
- Nicotine is one of more than 4,000 chemicals found in the smoke from tobacco products; it is the primary component that acts on the brain. Smokeless tobacco products (for example, snuff and chewing tobacco) also contain many toxins as well as high levels of nicotine. Nicotine is a naturally occurring colorless liquid that turns brown when burned and takes on the odor of tobacco when exposed to air. There are many species of tobacco plants, the tabacum species serving as the major source of today's tobacco products. Extensive study shows it to have a number of complex and sometimes unpredictable effects on the brain and the body. Nicotine is absorbed through the skin and mucosal lining of the nose and mouth or in the lungs (through inhalation).

Nicotine can reach peak levels in the bloodstream and brain rapidly, depending on how it is taken. Cigarette smoking results in nicotine reaching the brain within just 10 seconds of inhalation. However, cigar and pipe smokers, on the other hand, typically do not inhale the smoke, so nicotine is absorbed more slowly through the mucosal membranes of their mouths (as is nicotine from smokeless tobacco).

Nicotine is one of the most heavily used addictive drugs in the U.S., and the leading preventable cause of disease, disability, and death in the U.S. Cigarette smoking accounts for 90% of lung cancer cases in the U.S., and about 38,000 deaths per year can be attributed to secondhand smoke. Most cigarettes in the U.S. market today contain 10 milligrams (mg) or more of nicotine. The average smoker takes in 1 to 2 mg nicotine per cigarette when inhaling (Psychology Today)

The common denominator in all these definitions is that nicotine is a product of the tobacco plant. Although we have developed technologies that can create many naturally occurring products synthetically, nicotine is produced by tobacco and is, therefore, a tobacco product.

Sadly, because of the aggressive marketing to downplay this aspect of ENDS, many of our vulnerable youth have no idea that these vaping devices even contain nicotine. At the April 2014

Tobacco and Health Trust Fund Board's public hearing, several students testified to that effect. All they know is there are great flavors and they can't "hurt" you. Clearly there needs to be more truth in advertising as well!

The second industry myth is that since these ENDS do not emit smoke they do not present the same risks to the user that traditional cigarettes do, and are therefore harmless. Sometimes I regret just how effective we have been in identifying the dangers of secondhand smoke and its toxins. Somehow many people truly believe that if there is no smoke – there are no toxins or carcinogens to cause disease. And the industry has capitalized on this illusion. Using the old tactics of the 80s and 90s, the Masters of Doubt have maintained that electronic smoking devices release "harmless water vapor". However, water is not an ingredient in ENDS!

What is advertised as a vapor is actually an aerosol that contains nicotine, ultrafine particles and toxins. The compounds that have already been identified in mainstream (MS) or secondhand (SS) ESD aerosol include: Acetaldehyde (MS), Benzene (SS), Cadmium (MS), Formaldehyde (MS,SS), Isoprene (SS), Lead (MS), Nickel (MS), Nicotine (MS, SS), N-Nitrosornicotine (MS, SS), Toluene (MS, SS).

ESDs also contain and emit propylene glycol, a chemical that is used as a base in ESD solution and is one of the primary components in the aerosol emitted by ESDs. Short term exposure causes eye, throat, and airway irritation. Long term inhalation exposure can result in children developing asthma. Even though propylene glycol is FDA approved for use in some products, the inhalation of vaporized nicotine in propylene glycol is not. Some studies show that heating propylene glycol changes its chemical composition, producing small amounts of propylene oxide, a known carcinogen.

Remember, it is the fact that secondhand smoke from cigarettes can harm others who are exposed to it that is the basis upon which our smoke free laws stand.

A third industry claim, used as a marketing pitch to traditional cigarette smokers is that e-cigarettes are useful as a tool to help smokers quit. Despite numerous claims, the effectiveness of e-cigarettes as cessation aides has not been proven. Unlike the FDA-approved nicotine replacement therapies, they are not approved by the FDA. If they want to make that claim, they should apply for such rigorous FDA evaluation and approval.

Regulation and Restriction of Places Where ENDS can be used

We have demonstrated that ENDS are indeed tobacco products and that there is evidence they are harmful to both the users and those exposed to the secondhand aerosol. I have not mentioned an additional danger – nicotine poisoning. Nicotine is a known potentially lethal toxin, and poisoning related to ENDS can occur by ingestion, inhalation and absorption.

There has been a significant rise in the number of calls to poison control centers in California and nationally for both adults and children who were accidentally exposed to e-liquids, many of whom are children aged five and under.⁷ Nationally, the number of calls rose from one per month in September 2010 to 215 per month in February 2014. In California, from 2012 to 2013, the number of calls to the poison control center involving e-cigarette exposures in children ages

five and under increased sharply from 7 to 154. By the end of 2014, e-cigarette poisonings to young children tripled in one year, making up more than 60% of all e-cigarette poisoning calls. Adults have also mistakenly used e-liquid in harmful ways, such as eye drops, and have been harmed by exploding cartridges and burning batteries.

While the FDA can and should regulate electronic smoking devices as tobacco products, they do not have the authority to address where the products may be used. Cities and states can and are enacting laws that regulate when and where ESDs can be used, as well as laws that regulate sales to minors and where the product can be sold. In other words, city and state lawmakers should not wait for the FDA to address these products.

As of October 1, 225 U.S. municipalities and three states include electronic smoking devices (ESDs) as products that are prohibited from use in smoke free environments. From New York City to Indianapolis, and Chicago to Los Angeles, communities are choosing to expand their smoke free air laws to not allow the use of ESDs in all smoke free environments (indoors and outdoors) so that workers & the public don't have to breathe the toxic aerosol that they emit.

Several states are weighing e-cigarette taxes. Two states already tax them: Minnesota and North Carolina. A record of 60-plus bills designed to rein in the fast growing vape industry are being considered in 21 state legislatures, a major increase from only 11 e-cigarette bills last year.

MATCH agrees with the American Cancer Society recommendation to keep separate any bills intended to regulate the use of the product (i.e., smoke free environments) and those intended to regulate the product itself (e.g., classification, licensing).

People have gotten used to “taking it outside” for cigarettes and are annoyed and sometimes upset when ENDS users light up anywhere they please. They are reluctant to speak out because they are confused as to whether it is legal or not. The increasing frequency of this practice has the potential to erode the now accepted social norm of not smoking in public places. Given that much of ENDS marketing focuses on the users' ability to circumvent smoke free laws and “smoke anywhere”, state and local communities play a critical role in protecting nonsmokers and youth from secondhand aerosol exposure to the ENDS aerosol.

ACS has also offered suggested definitions for including ENDS in smoke free laws. We also agree with these proposed definitions. However, if new definitions are adopted, it is imperative to evaluate its effect on existing laws, such as 53-344, which bans the sale of e-cigarettes to minors, but does not define them as a tobacco product.

ENDS are only the latest twist in the industry's technologic bag with flavors and marketing to attract our kids to becoming the next generation addicted to nicotine. In 2014, for the first time ever, teen use of e-cigarettes surpassed the use of traditional cigarettes. The Monitoring the Future study, which tracks substance abuse trends among 40,000 youth nationally, found that among 8th and 10th graders, current e-cigarette use was double that of traditional cigarettes (8.7 percent vs. 4 percent for 8th graders and 16.2 percent vs. 7.2 percent for 10th graders). Among 12th graders, 17.1 percent reported current e-cigarette use vs. 13.6 percent traditional cigarette

use. This 2014 finding that e-cigarette use exceeds traditional cigarette use among teens comes on the heels of the 2013 NYTS which found that e-cigarette use tripled among high school students, increasing from 1.5 percent in 2011 to 4.5 percent in 2013. An analysis of the 2011- 2013 NYTS also reported that more than a quarter million youth who had never smoked a traditional cigarette used e-cigarettes in 2013, a three-fold increase since 2011, and that youth who had used e-cigarettes were nearly twice as likely to try traditional cigarettes as those who never used e-cigarettes

Results from the Connecticut State Department of Public Health (DPH) 2013 Youth Tobacco Survey indicate that while 9% of our high school students reported smoking cigarettes, 20% reported using some type of tobacco product in the last 30 days. For our young men, the rate was one in four!

Each year in Connecticut, 2,500 of our youth under age 18 become new daily smokers. An estimated 56,000 children alive in Connecticut today will die prematurely from smoking-related diseases. We cannot ignore these findings. No one can believe that tobacco use is a passé problem.

We need to remain engaged and committed to address the new challenges presented by tobacco products and usage in this new century and respond appropriately. The large number of signatories on these bills are evidence of the real champions for public health in our state legislature. However, we cannot move forward with any real comprehensive effort for tobacco prevention and control at the same time that the Governor's budget sweeps the THTF transfers for the next two years. Without that funding it would be unlikely that new efforts targeting ENDS would be unlikely. This is bad public policy and poor business management.

MATCH stands ready to work with you on this controversial and challenging issue. We are confident that we can respond with good public health policy that saves lives and promotes health for our residents.