

Remarks for the Erie County Health and Human Services Committee regarding e-cigarettes and liquid nicotine

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Good morning. I am Dr. Mark Travers an Assistant Professor of Oncology in the Department of Health Behavior and the Director of the Air Pollution Exposure Research Laboratory at Roswell Park Cancer Institute. I work in a multi-disciplinary team of researchers that among many achievements has become a world leader in tobacco control policy evaluation and has contributed much of the scientific basis underlying global tobacco control policies. I have training in epidemiology and biomedical engineering along with over 10 years of experience in evaluating the effectiveness of tobacco control policies in the U.S. and internationally. I have authored over 40 peer-reviewed publications and over 100 technical reports in areas of tobacco policy research. I have developed and validated a method and protocol for measuring exposure to tobacco smoke pollution and have also led the largest global effort in over 65 countries to measure tobacco smoke pollution exposure and evaluate smoke-free air policies. My research has been used to educate policymakers and the public on exposures to tobacco smoke pollution and in evaluating smoke-free air policies

Thank you for the opportunity to address this Committee with our perspective on e-cigarettes and the opportunity to offer insights about this important and complex issue.

First, let's examine the problem. Tobacco use remains the leading cause of preventable death in New York State. This year, more than 23,000 New Yorkers will die from tobacco-related diseases. The U.S. Surgeon General calls youth smoking an epidemic. In New York State, more than 270,000 young people under the age of 18 will die prematurely from smoking. But today, the tobacco marketplace is changing from a marketplace that used to be almost exclusively combusted conventional cigarettes to a marketplace that includes a wide array of products that are quickly growing in mainstream popularity, particularly electronic cigarettes, but also products like hookah or waterpipe, and flavored cigars.

With regard to e-cigarettes let me be clear up front - there is reason to be hopeful about their potential to reduce the disease burden caused by tobacco. The best thing a smoker can do is to quit completely, but short of that, if a smoker switched completely to an electronic cigarette they are *probably* significantly reducing their health risk. HOWEVER, there is reason to be very concerned about potential unintended consequences of electronic cigarettes and their marketing. Some people may use e-cigarettes as a reason to CONTINUE their cigarette

smoking – as a rationalization that they can cut back a few cigarettes a day and use an e-cigarette at work or socializing in public. Youth who have never smoked may take up e-cigarettes, and former smokers may be enticed to come back to the tobacco marketplace. These are outcomes that are probably bad for public health. How these products are marketed is a key driver of these behaviors. Research is underway to understand these issues better but in the meantime it is sensible to discuss policies that address some basic foundational issues.

Secondly, here are some facts about e-cigarettes. E-cigarettes often look like traditional cigarettes and mimic the act of smoking but they are battery operated products that heat a liquid solution, vaporizing nicotine, which is inhaled by the user. This is called ‘vaping’. E-cigarettes typically come in a gamut of flavors from wintergreen to mint chocolate to cherry cola. Nationally, e-cigarettes have become a nearly **2 billion** dollar a year industry, with one stock analyst from a major firm predicting e-cigarette sales will surpass conventional cigarette sales within 10 years.

In terms of use patterns, the Centers for Disease Control reported that youth uptake of e-cigarettes doubled in just one year from 2011 to 2012. That same report said more than 75% of teens who used e-cigarettes within the past 30 days also smoked conventional cigarettes. Use rates among adults are also increasing rapidly, although use is primarily among those who also smoke cigarettes. The data are unclear if e-cigarettes are effective in helping smokers quit smoking. The dialog at this hearing is a valuable discussion with broad ranging ramifications for the health of the residents of Erie County and our young people. (Reference: <http://www.cdc.gov/media/releases/2013/p0905-ecigarette-use.html>)

So, the big question is do e-cigarettes pose a health risk? The answer is an unequivocal yes.

Here is what the FDA says about e-cigarettes. These unregulated products contain ingredients that are known to be toxic to humans; that there is no way of knowing if e-cigarettes are safe for their intended use; or what types or concentrations of potentially harmful chemicals, including nicotine, users are inhaling when they use these products. (References: <http://www.fda.gov/newsevents/publichealthfocus/ucm172906.htm>; <http://www.fda.gov/forconsumers/consumerupdates/ucm173401.htm>)

While overall e-cigarettes appear to be less harmful than conventional cigarettes, they are not safe. We know they emit toxins that are harmful. Roswell Park is at the forefront of e-cigarette research. Here is some of what we have learned.

E-Cigarettes may expose users to carcinogens. With some of the newer e-cigarette devices, users can control the voltage of the device to increase the vapor and nicotine production. The chemicals that support the vaping process are glycerin and propylene glycol. Roswell Park analysis found that the higher the voltage, the more toxic the e-cigarette. Cancer causing

chemicals such as the embalming agent, formaldehyde, and the chemical acetaldehyde, are emitted and may increase health risks to users.

Exposure to second-hand vapor is also a concern. Work in our labs has shown that e-cigarettes are not emission free. Ecigarette emissions include nicotine, acrolein (which is commonly used as a weed killer), formaldehyde and other chemicals. While this exposure is less than traditional cigarettes, these chemicals are still present. Just because it's a smaller amount of poison than that observed for cigarettes doesn't mean secondhand vapor is safe.

So there are health risks associated for the users. There are second hand smoke issues for those not using e-cigarettes. Third-hand smoke also has been documented as a result of e-cigarette use by Roswell Park scientists. These studies found evidence of third-hand smoke deposited as nicotine residue on indoor surfaces. (Reference: <https://www.roswellpark.org/media/news/roswell-park-researchers-present-findings-2-e-cigarette-studies-srnt-meeting>)

Scientific research is ongoing and in the near future will help to more clearly delineate the health risks and net public health impact associated with e-cigarettes.

Then there is the significant policy concern over our Clean Indoor Air Legislation. Traditional cigarettes have been banned from most indoor public places since 1999 in Erie County and more so since the 2003 State Clean Indoor Air Act. Currently, e-cigarettes are not included in these bans -- unless local municipalities, schools and businesses decide on their own to ban their use. E-cigarettes did not exist when these laws were implemented and the science shows that harmful chemicals are present in ecigarette vapor.

The use of e-cigarettes in indoor spaces can create misunderstandings about existing laws and threatens the impact and intent of the Clean Indoor Air Act. The intent of that law is to provide workers with clean air to breathe. In addition, the use of e-cigarettes makes it difficult for business owners and officials to enforce existing smoke-free air laws as they closely resemble traditional cigarettes. This causes confusion and leads people to believe that it is legal to smoke in smoke-free environments.

New York State took a strong stand in 2003 with the Clean Indoor Air Act, protecting the health of both the smoker and non-smoker. Public forums like this provide an opportunity to share information and relevant science to determine the best policy actions moving forward, and the science my group and others have performed indicate that there are toxins in ecigarette vapor that non-users may be exposed to in public places.

Thank you for your attention, and I'm happy to take any questions from the committee.