

Remarks for the NYS Senate Health Committee regarding e-cigarettes and liquid nicotine
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Good morning. I am Dr. Andrew Hyland, Chair of the Department of Health Behavior at Roswell Park Cancer Institute which you may know is a leading national cancer center located in Buffalo, New York. I've been involved in tobacco control research for 20 years, have published more than 200 peer-reviewed papers, and serve as the Deputy Editor for the journal, Tobacco Control. I serve as the scientific leader for a national study for the National Institute on Drug Abuse and the U.S. Food and Drug Administration and I have provided consultation to international, national, and state agencies on tobacco control issues. Additionally, I direct the New York State Smokers Quitline and the Erie/Niagara Tobacco Free Coalition.

Thank you for your invitation to address the New York State Senate Health Committee with our perspective on e-cigarettes and the opportunity to offer insights about this important and complex issue. I will start my remarks with a summary of the problem we face, then describe some facts about e-cigarettes, then describe some relevant research on e-cigarettes my group is conducting, and conclude with thoughts about the implications for the NYS Clean Indoor Air Act.

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.

With regard to e-cigarettes let me state my position 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 ecigarette 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 and I understand there are bills under consideration at the moment.

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 that vaporizes the 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 ecigarette 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 New York State 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 second 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>)

I understand this committee is examining legislation regarding the regulation of e-liquid. This too is a concern. In March of this year, the American Association of Poison Centers issued a warning about e-cigarettes and the e-liquid, urging users to keep the materials in a secure place. Poison centers around

the country are reporting an increase in the number of calls and more than half of those involve exposure to nicotine by children under the age of six. Some ecigarette manufacturers have stated a willingness to sell their products in childproof packaging. (Reference: <http://www.cdc.gov/media/releases/2014/p0403-e-cigarette-poison.html>)

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.

While the content and emissions from e-cigarettes are being analyzed, the behavioral risks also are being assessed. As I mentioned earlier, there is reason to be hopeful about e-cigarettes for improving public health if they serve as a transition for people to get off conventional cigarettes completely, but there is reason for concern if things fall short of this goal.

And this is where the marketing for e-cigarettes plays a key role. While the advertising for traditional cigarettes was banned from television and radio in 1971, there are no current restrictions for e-cigarettes. A recent report titled, Gateway to Addiction, recently released by several US Senators, found that more than \$59.3 million was spent in 2013 on e-cigarette marketing. (Reference: <http://democrats.energycommerce.house.gov/sites/default/files/documents/Report-E-Cigarettes-Youth-Marketing-Gateway-To-Addiction-2014-4-14.pdf>)

I want to show some examples of how e-cigarettes are now being marketed. Based on my earlier remarks, if a 50 year old smoker switches completely to e-cigarettes this is probably a good thing for public health. But let's take a look at some of the most prominent advertising for e-cigarettes today. [CUE SLIDE SHOW].

The target audience for this marketing is exactly that which many are fearful about the potential unintended consequences of e-cigarettes. These promotions threaten to reverse decades of progress in preventing kids from using tobacco products.

Then there is the significant policy concern over the New York State Clean Indoor Air Act. Traditional cigarettes have been banned from indoor public places since 2003. Currently, e-cigarettes are not included in this ban -- unless local municipalities, schools and businesses decide on their own to ban their use. E-cigarettes did not exist when that law was 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 spirit 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 resemblance traditional cigarettes. This may cause confusion and lead 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 at this time.