Medical Director's Report
Board of Health
April 2014

Influenza:

We are continuing to see a downturn in the amount of influenza circulating. We are still seeing sporadic cases of it, but in general the statewide statistics are showing a downturn.

Lyme Disease:

We are coming into the start of Lyme season as the weather warms up. Tompkins Weekly ran an article on its front page covering a community presentation by a panel discussion about Lyme disease. The article was focused on only the viewpoints of the presenters at that presentation. I interacted with one of the physicians working with the Ithaca Free Clinic to encourage him to discuss Lyme issues with personnel there so they have better appreciation of the clinical issues regarding diagnosis and treatment of this disease.

In addition, I collaborated with members of the department with regard to the presentation. The Health Department will be putting out additional press releases and articles with more information on diagnosis and treatment which I think will be more representative of the situation.

E Cigarettes:

As information begins to accumulate concern grows about their health implications. E cigarettes vaporize chemicals, including liquid nicotine, for inhalation by heating the liquid in a battery operated device. They do not incinerate tobacco as conventional cigarettes do. Therefore, they avoid many of cigarettes' combustion products. However, the vaporized chemicals have been shown to increase airway resistance in humans. The health effects of the chemicals themselves are yet to be fully evaluated.

We do know however, that the amount of nicotine in them can vary from 1% to almost 20%. We know nicotine is toxic in high amounts. An average cigarette delivers 1 mg of nicotine. The lowest strength of nicotine gum delivers 2 mgs. E cigarettes range from 0 mg nicotine to 20mg. To look at the nicotine delivered by inhalation Goniewicz ML et al did a study:

Introduction:

The electronic cigarette (EC) is a plastic device that imitates conventional cigarettes and was developed to deliver nicotine in a toxin-free vapor. Nicotine in a solution is heated and vaporized when a person puffs through the device and is inhaled as a vapor into the mouth. The EC is a new product on the market and little is known about its safety and nicotine delivery efficacy. The aim of the study was to analyze nicotine levels in vapor generated from various EC brands and models. The study was designed to assess efficacy and consistency of various ECs in converting nicotine to vapor and to analyze dynamics of nicotine vaporization.

Methods:

Sixteen ECs were selected based on their popularity in the Polish, U.K. and U.S. markets. Vapors were generated using an automatic smoking machine modified to simulate puffing conditions of real EC users. Nicotine was absorbed in a set of washing bottles with methanol and analyzed with gas chromatography.

Results:

The total level of nicotine in vapor generated by 20 series of 15 puffs varied from 0.5 to 15.4 mg. Most of the analyzed ECs effectively delivered nicotine during the first 150-180 puffs. On an average, 50%-60% of nicotine from a cartridge was vaporized.

Conclusions:

ECs generate vapor that contains nicotine, but EC brands and models differ in their efficacy and consistency of nicotine vaporization. In ECs, which vaporize nicotine effectively, the amount inhaled from 15 puffs is lower compared with smoking a conventional cigarette.

Nicotine Tob Res. 2013 Jan;15(1):158-66. doi: 10.1093/ntr/nts103. Epub 2012 Apr 22.

Nicotine can be absorbed through the skin. Recharging an E cigarette can be done by the user using bottles of purchased solutions. The nicotine content of these will vary. If absorbed through the skin even an adult can become toxic (as for example if the solution is spilled on the body (see http://www.nytimes.com/2014/03/24/business/selling-a-poison-by-the-barrel-liquid-nicotine-for-e-cigarettes.html)

And for youth there is concern that they will be a gateway drug to cigarettes. This concern is fueled by the deceptive marketing strategies of e-cigarette companies, including the variety of flavors marketed (e.g. bubble gum). It is also important to note that in recent years, the three major tobacco companies (Altria, RJ Reynolds, and Lorillard) have either created their own e-cig

product or purchased existing companies. The involvement of big tobacco puts into question the motivation and target audience of e-cigarettes.

A survey from the Centers for Disease Control and Prevention found that in 2012, about 10 percent of high school students said they had tried an e-cigarette, up from 5 percent in 2011. But 7 percent of those who had tried e-cigarettes said they had never smoked a traditional cigarette, prompting concern that e-cigarettes were, in fact, becoming a gateway. "I think the precautionary principle — better safe than sorry — rules here," said Dr. Thomas Frieden, director of the C.D.C. http://www.nytimes.com/2014/02/23/health/a-hot-debate-over-e-cigarettes-as-a-path-to-tobacco-or-from-it.html?_r=0

The share of middle and high school students who use e-cigarettes doubled in 2012 from the previous year, federal data show. The rise is prompting concerns among health officials that the new devices could be creating as many health problems as they are solving.

One in 10 high school students said they had tried an e-cigarette last year, according to a national survey by the Centers for Disease Control and Prevention, up from one in 20 in 2011. About 3 percent said they had used one in the last 30 days. In total, 1.8 million middle and high school students said they had tried e-cigarettes in 2012.

"This is really taking off among kids," said Dr. Thomas Frieden, director of the C.D.C. http://www.nytimes.com/2013/09/06/health/e-cigarette-use-doubles-among-students-survey-shows.html

For toddlers and young children the concern is that routes of poisoning include ingestion and skin absorption.

"These "e-liquids," the key ingredients in e-cigarettes, are powerful neurotoxins. Tiny amounts, whether ingested or absorbed through the skin, can cause vomiting and seizures and even be lethal. A teaspoon of even highly diluted e-liquid can kill a small child…. pose a significant risk to public health, particularly to children, who may be drawn to their bright colors and fragrant flavorings like cherry, chocolate and bubble gum.

The problems with adults, like those with children, owe to carelessness and lack of understanding of the risks. In the cases of exposure in children, "a lot of parents didn't realize it was toxic until the kid started vomiting," said Ashley Webb, director of the Kentucky Regional Poison Control Center at Kosair Children's Hospital."
http://www.nytimes.com/2014/03/24/business/selling-a-poison-by-the-barrel-liquid-nicotine-for-e-cigarettes.html

Indoor air quality:

And for employers the question is whether to ban the vapors from the workplace to protect non users. Major cities such as New York, Boston, Chicago, and Los Angeles have amended current smoking laws to ban the use of e-cigarettes in public places where smoking is already banned, including restaurants and bars.
See http://www.npr.org/blogs/thetwo-way/2013/12/19/255582225/new-york-extends-smoking-ban-to-e-cigarettes and http://www.reuters.com/assets/print?aid=USBREA2324920140305.

General Activities:

I conducted a jail review on March 4th at the Tompkins County Jail completing a quality assurance report. Copies go to the Public Health Director, the jail Sheriff, and the jail Medical Director. Generally I do a 10% sample of charts of the inmates looking at quality assurance issues.

Attended Management meeting on March 11th, where encrypted e-mail compliant with HIPPA requirements was discussed.

Met with Susan Dunlop to discuss further plans for upcoming diabetes prevention workshops for patients. In general the workshops remain successful. Patients lose weight (approximately 6 %) which lowers their diabetes risk.

Reviewed a patient issue with the MOMS personnel, with regards to a MOMS client, to help resolve it.

Attended Quality Assurance Committee Meeting on March 18th. We reviewed cases and quality assurance issues from multiple arms of the Health Department. These include, but are not limited to WIC, the Lead Program and MOMS.

Attended a meeting of the Ithaca City School District, which had asked for my help as the Health Department Medical Director, to aid in fostering better communications between the school district and the health care practitioners regarding the medical needs for their patients in order to coordinate services and maximize care. We will have more meetings over the next couple of months to make progress on this. Hopefully the model could be used in Dryden, Enfield/Newfield and Groton.

Reviewed Emergency Preparedness materials on Point of Distribution models in preparation for upcoming two day seminar on local preparedness at Ithaca College in April.