Cigarettes vs. Electronic Cigarettes

The Dangers of Cigarettes and the Regulation of Electronic and Conventional Cigarettes

Tag Words: cigarettes, electronic cigarettes, esmokes, regulation of electronic cigarettes

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Summary

Cigarettes have been a long-standing issue in the United States for many years already, but we want to raise awareness about newer alternatives to smoking cigarettes. There have been numerous public service announcements, programs, charities, organizations, government bills and laws, advertisements, commercials and so much more to raise awareness and educate people on the dangers of smoking cigarettes. After so many years of redundancy, the American people have been drilled with the unhealthy consequences of smoking, but current smokers have limited choices when it comes to alternative smoking choices and nicotine replacements. We want to raise awareness about the newest alternative recently introduced into world of quitting smoking: electronic cigarettes. These “esmokes” were invented recently and claim to be a tobacco-free device that delivers only nicotine to the smoker, and on exhalation the smoker only blows out water vapor. In theory, this seems like a practical and useful tool to help smokers quit, but several questions and controversies will arise. Who and where can electronic cigarettes be sold? Who is allowed to manufacture them? How much nicotine should be in the device? We have decided to write a prototype of a legislative bill to regulate the manufacture and distribution of electronic cigarettes.

Video Link

http://www.youtube.com/watch?v=TukVTofNFw8
The Issue: Smoking

Taxation of Cigarettes
Cigarettes have been a significant source of tax revenue for many states, and these taxes have been supported by many health groups who want to discourage cigarette smoking. Many states have significantly increased their revenue, and have saved money by reducing tobacco-related health care costs. High taxes on cigarettes make them more unaffordable for smokers, and eventually force many of them to quit smoking due to the fact that they simply cannot afford them. According to www.tobaccofreekids.org, “Every 10 percent increase in cigarette prices reduces youth smoking by about seven percent and total cigarette consumption by about four percent.” This statistic illustrates the power of cigarette taxation on the youth. The impact on the youth has more significant than on adults simply because the youth have less money than adults and are unwilling to use their minimal assets to buy cigarettes. In addition, polls show that many voters support the increases in cigarette taxes, and would much rather have more revenue to spend on public programs than have them cut due to lack of funds.

 FDA Regulation of Electronic Cigarettes
On April 27, 2011, the FDA decided to regulate electronic cigarettes in the same way that they regulate other tobacco products. This means that electronic cigarettes will be easily obtained by anyone who is over 19. The FDA had initially wanted electronic cigarettes to be treated as drug-delivery devices, which would have stricter regulations. However, the FDA lost the case. The FDA believes that they could still make stricter regulations on electronic cigarettes if they are marketed for “therapeutic purposes”. The decision by the Supreme Court not to regulate electronic cigarettes has led to the growing popularity of the devices. However, the regulation of electronic cigarettes as tobacco products is not entirely a negative thing. Bill Godshall, executive director of SmokeFree Pennsylvania says that “smokers will have access to many different, less-expensive smoke-free alternatives. This decision will boost e-cigarette sales at the expense of tobacco cigarettes, and many more smokers will switch.” The FDA announced that it would not challenge the new regulation on electronic cigarettes, and would rather provide guidance instead. The new regulation would be extended within the Tobacco Control Act to include electronic cigarettes into “other categories of tobacco products that meet the statutory definition of ‘tobacco product’.” With the new regulation on electronic cigarettes, they could now be sold alongside pipes, cigarettes, and cigars in U.S. stores. However, New Jersey is the leader in the United States on tobacco control laws. These stringent laws that now apply for electronic cigarettes will provide an environment where electronic cigarettes are still somewhat regulated. We feel that electronic cigarettes should not be easily obtained because they can be abused by the youth, and nicotine is a very addictive substance.

- http://www.tobaccofreekids.org/what_we_do/state_local/taxes/
Comparing the health effects of cigarettes vs. electronic cigarettes (Rena Zheng)

Many current smokers who are trying to quit have tried many different alternatives to smoking. Nicotine gum, patches, lozenges, nasal sprays, and inhalers. Several smokers say that these alternatives do not provide the relief they need when compared to the feeling they get from when they do the action of smoking an actual cigarette. A newer alternative is the electronic cigarette, which is an electronic device that is usually shaped like a cigarette that delivers nicotine vapor when used. When they are inhaled, a heating element changes the liquid nicotine inside the device is vaporized and the nicotine smoke is inhaled into the person’s lungs. There has been some debate over the safety of these “esmokes”; there are several studies currently being done to research the affects of long-term nicotine use and second-hand nicotine exposure.

The electronic cigarette was invented in 2003 by Chinese pharmacist Hon Lik. Since this is a relatively new device, there are not many regulations as to how these are allowed to be sold and manufactured. For now, the FDA has banned them because of poor manufacturing and labeling issues. The nicotine used inside the cartridges are usually flavored to mimic real cigarettes. The device is also shaped like a real cigarette, and when the user inhales on it the other end lights up like a real cigarette. The main difference between electronic cigarettes and real cigarettes is the chemical components used to manufacture them. In conventional cigarettes, there about 4,000 chemical additives used to produce them. These chemicals have no affect in the manufacturing of these products, but when they are burned they are considered dangerous and changes the properties of the chemicals. Some of the main dangerous chemicals are listed below.

- http://www.americanheart.org/presenter.jhtml?identifier=4615
- http://www.fda.gov/ForConsumers/ConsumerUpdates/ucm225210.htm
- http://www.cdc.gov/tobacco/basic_information/index.htm

Benzene

This is a dangerous chemical that can be found in coal and petroleum. It is usually used as a solvent for fuel, other chemical manufacture, and cigarettes. Most benzene is from human activities, such as heavy industrial factory fumes and smoke. Long-term exposure to benzene can cause various cancers such as leukemia, anemia, and risk damage to the reproductive system. When benzene enters the body, it goes through the bone marrow and fatty tissues. When it passes through the liver, it is broken down and the components that it breaks into is very harmful to the body. Benzene causes many blood-related diseases because it passes through the bone marrow, and since it is usually used in the manufacture of synthetic and in the presence of other heavy chemicals, it is a very dangerous chemical to be inhaled into the lungs through cigarette smoke.


Formaldehyde

This is an organic compound that is usually used as embalming fluids and fixative agents. It can also be used as a disinfectant to kill viruses and bacteria. Some topical creams contain trace
amounts of formaldehyde to help cure warts and get rid of urinary tract infections. It also has industrial uses to make other chemical compounds since it is a very basic organic structure that is easily manipulated. Formaldehyde used to be used to in resin to build houses and in cosmetics, but when the damaging health affects were researched, many countries had banned the use of formaldehyde in the manufacture of products that would be used around people. People who live in homes or trailers that are built with formaldehyde have a higher risk of getting cancer and they report having violent allergies, coughing, headaches, and other respiratory issues. When formaldehyde is inhaled, it irritates the mouth, throat and lungs and creates a burning sensation in the throat. At more concentrated levels, it can also irritate the eyes, aggravate asthma symptoms, and cause headaches. There have also been studies done that prove formaldehyde to be a carcinogen. It can cause cancer in the nose and blood and a wide variety of other health problems in the pulmonary and reproductive systems.


Ammonia
This chemical is usually used for household and industrial-strength cleaning solutions and in fertilizer. This compound is a liquid with a very strong, pungent odor with very corrosive properties because of its basicity. It is also used in the manufacture of plastics, other chemicals, pesticides, hair dyes, and explosives. The inhalation of ammonia is very damaging to the nose, throat and respiratory tract. It causes a burning sensation when inhaled, much like formaldehyde. Ammonia is dangerous when there is water vapor present, because it forms ammonium hydroxide, which is a very health depleting compound because it attaches onto skin, eyes, oral, throat, and mostly mucous surfaces and causes the necrosis of the tissue. As cells die, water is extracted and an inflammatory response is triggered. In cigarettes, ammonia is used to convert nicotine molecules in tobacco into free nicotine molecules in the the smoke. This helps the smoker get more nicotine every time they inhale. It is also used as a flavor additive.

http://www.health.state.ny.us/environmental/emergency/chemical-terrorism/ammonia_tech.htm

Tar
Most of the tar produced from cigarette smoke is from the smoldering of organic chemicals in the cigarette. The tar produced by these chemicals are carcinogenic and mutagenic, causing a huge array of health issues, including lung cancer, emphysema, and chronic bronchities. When the tar is inhaled into the lungs, it builds up in the alveoli (air sacs) in the lungs and on the cilia inside the respiratory tract. This prevents the cilia in the lungs and airways from sweeping up unwanted mucus, bacteria, and other unwanted chemicals out of the chest, causing the person to cough more often and create more respiratory issues. The coating of tar in the esophagus and lungs can lead to esophageal and throat cancer. The tar also stains the teeth, desensitizes the taste buds on the tongue, and can even stain the hands and clothes of the smoker. As most people have seen, tar is the reason that smokers have a “black lungs” when compared to the healthy “pink lungs” of a non-smoker.

Carbon Monoxide
This compound is mostly found in the smoke that comes out of cars’ exhaust pipes. This chemical is fatal in large amounts, because it binds with the hemoglobin of red bloods cells and
prevents the blood cells from carrying more oxygen to the rest of the body. When the body doesn’t have enough oxygen, the heart pumps faster and harder to make up for the lost oxygen. This is an example of one of the chemicals that are formed when the cigarette is lit. It contributes to the loss of elasticity of pulmonary tissue inside the lungs, and can cause emphysema and COPD (chronic obstructive pulmonary disease).

Generally, all the chemicals in cigarettes and cigarette smoke are very dangerous to your health. It affects all the systems of the body, and it raises the risk of cancer in almost every organ: mouth, nose, lungs, stomach, pancreas, kidneys, bladder, and liver. The two most affected organs are the heart and lungs. Risk for heart disease and heart attacks is double in smokers. There are too many health problems that can be caused by cigarette smoke, almost every organ system is affected. Yet there are about 2,800 people everyday that start smoking and won’t be able to quit on their own. This is because of the main ingredient, nicotine. Nicotine is a highly addictive chemical that is found naturally in tobacco leaves.

**Nicotine**

Nicotine addiction is historically one of the hardest additions to break, according to the American Heart Association. Nicotine is able to enter through the body through various ways: absorbed through the skin, inhaled so that it is absorbed into the bloodstream, eaten through the mouth, and inhaled in through the nose. In the central nervous system, when nicotine reaches the brain, the nicotine molecules are binded to nicotinic acetylcholine receptors that release the neurotransmitter dopamine, which is responsible for the feelings of euphoria and relaxation. This chemical pathway is similar to the one which cocaine and heroin uses, and explains exactly how addicting nicotine really is. In the sympathetic nervous system, nicotine activates the release of epinephrine, which increases heart rate and blood pressure. Nicotine is able to become both a stimulant and relaxant. Because it triggers the release of so many different chemical messengers in the brain it can have a profound affect on the person who is smoking. Nicotine is said to increase concentration, alertness, memory, and arousal. It decreases pain and anxiety. The amount of calming affects it has on a person enough to say why this chemical is so addictive. It is interesting that when nicotine is taken in small amounts, it creates more active and “light-headed” state of mind, people become more alert, concentrated and have better memory is the cigarette was puffed in short small intervals or the blood doesn’t have a high nicotine level. When nicotine is taken in large amounts, it produces a more relaxing, calming, pain-killing feeling.

Nicotine is linked to heart disease, because it is an vasoconstrictor, so it makes the blood vessels smaller while increasing the heart rate, making the heart work harder to pump the blood out to the the body.

**Electronic Cigarettes**

These “esmokes” are what some say to be a safer alternative to smoking real cigarettes. This claim is based on the fact that electronic cigarettes contain 1,000 times less chemicals than real cigarettes. In most electronic cigarette cartridges, there are only two components: nicotine and propylene glycol. Some also contain glycerol, depending on the brand and type. Propylene glycol is a safe food additive that is used to keep the nicotine dissolved until it is passed through the heating device and converted into vapor. Glycerol is also another common food additive. These two additives are both approved by the FDA and on the GRAS (Generally
Recognized as Safe) list of substances. Most recipes have about 90% of propylene glycol, and about 5% of nicotine and 5% of glycerol. When compared to the amount of chemicals cigarettes have, electronic cigarettes are the obvious choice when choosing a safer alternative.

However, the real issue is how safe are these electronic cigarettes. Essentially, they are devices that deliver a highly addictive drug to people and are easily available online and in stores. There are no regulations or rules as to how they are made and sold, and research is still being done on how nicotine affects the body on a long-term basis.

Several studies have been conducted to test the acute effects of smoking an electronic cigarette, the levels of chemicals in electronic cigarettes, and how smokers feel when using the devices. Most studies say that the electronic cigarettes available now are generally unsafe for people to use, even when compared to the levels of toxicity in conventional cigarettes. In many of the studies, the conclusions, results, and discussions all state that the levels of nicotine are never exactly the amount it indicates on the label, and that nicotine levels are not consistent as the user keeps puffing on the device. However, one study subjectively measured how smokers felt when using electronic cigarettes, and most stated that they felt less cravings for conventional cigarettes. Another study measured levels of nicotine and carbon monoxide in the user’s blood to check the acute effects of using the device. The electronic cigarettes showed to have significantly lower levels of nicotine and carbon monoxide than conventional cigarettes, and tobacco cravings also were significantly decreased. All studies conclude that there needs to be more research done on what chemicals are in the devices and exactly how they effect the human body.

The Service Project: Raising Awareness and Legislative Bill

Raising Awareness (Ryan Cheung)

In order to help not only the smokers, but the community around them as well, we will be creating a free program to raise awareness about the dangers of smoking cigarettes. This will be a huge step forward in providing information about smoking, which will lead to better decisions from smokers as well as non-smokers. To promote this program, we will be sending out pamphlets, posting signs, as well as sending out emails to as many people as possible. Our promotion will be directed not only towards smokers, but to everyone in the general public. By promoting our program to everyone, we will ensure that people who know smokers and want them to quit will attempt to convince them to attend. Furthermore, the people who are curious about cigarettes could attend and will gain knowledge about the dangerous and addictive qualities of cigarettes.

This program will greatly affect people’s perspectives on smoking, and will help in aiding those are already addicted to cigarettes. In-depth information about how to quit as well as how to not fall back into the habit will be provided. With the proper information about the dangers of smoking as well as the effects that it has on loved ones, the likelihood that a smoker will quit will be greatly increased. However, it may be difficult to persuade smokers to join this program, since many of them do not clearly see the dangers of smoking, or simply believe that they need to smoke cigarettes to relieve stress. For that reason, this program will not only be for cigarette smokers themselves, but it will be promoted towards family and friends of smokers as well. By reaching this demographic and raising their knowledge about the dangers and hazards of
smoking, the chances that these people will attempt to get their loved ones to quit would greatly increase. The impact of having family and friends influence the smoker to quit will dramatically increase the chances that the smoker will quit. By involving loved ones, there will be motivation to not only quit for the smoker’s own personal health, but for the health and concern for his or her loved ones.

This program will also include assistance for those who have been smoking for long periods of time and are trying to quit, but cannot. This section of the program will attempt to cure addiction, and will provide guided assistance throughout the process. This will be an essential aspect of the program because it will actually break down the addiction barrier that long-time smokers have tried to overcome. Not only will this program be providing information to prevent people from picking up the bad habit of smoking, but we will be curing those who have fallen into the bad habit. By providing this life changing service, our recognition will grow tremendously, since word of the success in curing addiction will spread quickly. This will bring in even more smokers who are trying to quit, and eventually our program will have improved many lives.

In addition, this program will also target those who not smokers. Not only will raising awareness affect people that are avid smokers, but it will also diminish the likelihood that people will pick up the bad habit. Many young people start smoking because they do not think about the long-term health effects of smoking. However, these young smokers do not realize how addictive smoking can be. By simply trying cigarettes, young people can easily be pulled into the habit due its extremely addictive nature. Providing vast amounts of information about the negative health affects and the dangers of smoking will greatly decrease the chance that non-smokers will even try smoking, since they will know exactly how addictive and dangerous smoking is. By reducing the number of potential smokers, there will be fewer people smoking cigarettes, altering the perception that smoking is “the cool thing to do”. Since people have become more informed about the dangers of smoking, and have had their perception of smoking altered, the probability that someone will become a smoker will be dramatically decreased.

http://www.allaboutlifechallenges.org/smoking-addiction.htm

Legislative Bill (RC)

With the new development and increased popularity of electronic cigarettes, it seems as if they would be a great alternative to people who smoke cigarettes, since they contain a significantly fewer amount of carcinogens than cigarettes. By switching from tradition cigarettes, which have 4,000 chemicals and carcinogens, to an electronic cigarette, which contains only water, propylene, glycol, nicotine, and fragrance, one would suffer significantly less from the damaging effects of smoking a traditional cigarette. However, ensuring that electronic cigarettes be accessible only to smokers is an extremely difficult task. If non-smokers experiment with electronic cigarettes, they may become addicted to nicotine and may actually start smoking cigarettes. Without controlled distribution of electronic cigarettes, non-smokers may actually become addicted to nicotine and start smoking cigarettes. It is extremely important that electronic cigarettes be regulated, due to its addictive nature and possible use as a gateway into smoking actual cigarettes. This is the major reason that electronic cigarettes are not widely used today, and are seen as an easily obtainable good that can get the youth addicted to nicotine. In order to regulate the distribution of electronic cigarettes, we believe that the government would have to intervene. Therefore, we propose a legislative bill suggesting that electronic
cigarettes be available only by prescription. This would ensure that all distribution of electronic cigarettes be to smokers. By making electronic cigarettes available only by prescription, it would be up to the doctors to distribute them to patients who they know are actual smokers. This process would prevent those who are not smokers from gaining access to electronic cigarettes and potentially becoming addicted to nicotine. Making doctors the distributor of electronic cigarettes creates a process in which a medical professional can determine if the patient is a smoker, and therefore prescribe them to only those who actually need them.

Providing electronic cigarettes to those who actually need them, while prohibiting access to those who do not, will undoubtedly garner support for the electronic cigarette. With this support, electronic cigarettes will become more widely accepted, and will become a viable option to those who are trying to quit smoking. Many studies have shown that electronic cigarettes do indeed aid in the process of quitting. According to the Boston University School of Public Health, 31% of 222 first-time electronic cigarette buyers quit smoking for at least six months after switching. This is almost double the rate of the effectiveness other nicotine replacement methods such as the patch or gum. Clearly, the electronic cigarette is an extremely effective means of easing smokers away from smoking actual cigarettes. Passing a bill to make electronic cigarettes attainable only by prescription will increase the acceptance and eventually the overall use of electronic cigarettes. This will certainly replace the extremely detrimental habit of smoking cigarettes and allow people to ease their way into quitting with a safer alternative.

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Editorials

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How electronic cigarettes can be useful in the future

Cigarettes have a long history of being campaigned as dangerous to your health, cancerous, and cause many different problems. I am definitely not a supporter of tobacco companies and have no interest in smoking cigarettes.

Recently, there has been a new alternative to smoking: electronic cigarettes. There has been some controversy over the manufacture and regulation of these, because essentially they are a tool to deliver the drug nicotine. With some research, money, and new laws, I believe that these can be useful devices that can help current smokers curb their cravings and eventually stop smoking altogether.

However, there needs to be serious regulation laws and manufacturing standards that need to be passed. The levels of nicotine need to be delivered in safe amounts to the user, and only current smokers trying to quit can obtain these “e-smokes”. To ensure that kids and nonsmokers don’t start using and become addicted to nicotine, the devices should only be available by prescription.

Electronic cigarettes could potentially be a safe alternative to nicotine substitutes.

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How could something that accounts for about 20% of all deaths in the United States be legal? Cigarettes kill about 443,000 people annually, and these numbers continue to grow with the rising number of smokers. There is little legislation imposed on cigarettes, primarily due to the government’s tremendous tax revenue from cigarettes. Although the government is doing little to protect its citizens from cigarettes, there is an alternative to cigarette smoking that individuals can use in order to help them ease off smoking.

Electronic cigarettes, or esmokes, are electronic devices that are shaped like cigarettes and dispense nicotine vapor. This alternative does not contain the 4,000 carcinogens that cigarettes have, and can provide smokers with the nicotine that they crave. However, esmokes are banned in many areas, due to its uncertain health effects. However, cigarettes are known to have extremely dangerous cancer-causing poisons, but are not banned. This is clearly due to the government’s desire for tax revenue over the health of Americans.

It seems plausible that organizations such as the Food and Drug Administration (FDA), a government agency, discourage the use of esmokes in order to reduce the competition to cigarettes. With tremendous research done on the harmful effects of cigarettes, it seems that there is another reason that the government has not banned them yet: tax revenue. However, there have been very little negative effects of esmokes, yet they have been banned in multiple states.

It is no secret that cigarettes are extremely detrimental to one’s health. However, people continue to smoke them, and this number continues to grow. However, esmokes can serve the
same purpose as cigarettes, without the 4,000 carcinogens. Due to the government’s need for tax revenue from cigarettes, esmokes have been banned in many regions, but cigarettes have barely been limited. This is something that the government needs to change in order to prevent hundreds of thousands of deaths per year.

Instead of a community service project, we have decided to write a prototype of a legislative bill that discusses the regulation, production, and distribution of electronic cigarettes.

Appendices

Prototype of Legislative Bill

H.R. 7153
To provide a safe alternative to assist in the discontinuation of smoking conventional cigarettes with strict regulations on the production and allocation of electronic cigarettes.

IN THE HOUSE OF REPRESENTATIVES
April 13, 2011
Mr. Ryan Cheung and Ms. Rena Zheng introduced the following bill; which was referred to Committee of Science, Space, and Technology; and in addition to the Committees of Rules, Oversight and Government Reform, and the Energy and Commerce, for a period to be subsequently determined by the Speaker, in each case for consideration of such provisions as fall within the jurisdiction of the committee concerned.

A BILL
To provide a safe alternative to assist in the discontinuation of smoking conventional cigarettes with strict regulations on the production and allocation of electronic cigarettes.

Preamble: Whereas the dangers and health issues related to smoking cigarettes are extremely well known and scientifically proven, the dangers present in electronic cigarettes are not as severe and significantly less harmful in comparison to the cigarette. Although electronic cigarettes are significantly less dangerous than actual cigarettes, there are various restrictions and limitations on the use and effectiveness of electronic cigarettes, and little restriction against the use of actual cigarettes. The electronic cigarette is viewed by some as a harmful smoking aid that, and are regarded by some as a device that can be obtained and abused by young non-smokers, possibly leading non-smokers to becoming addicted to nicotine. However, the accepted use of electronic cigarettes would provide smokers an alternative that could greatly benefit their health and longevity.

SECTION I: Let the distribution of electronic cigarettes be within the jurisdiction of a trained medical professional, who is granted, by law, to provide medical prescriptions as necessary to those whose well-being depend on them.

i) The authority over the distribution of electronic cigarettes by medical professionals will provide a system where only those who are diagnosed as addicted cigarette smokers be permitted to obtain the device, preventing abuse of the device by those who seek to use it for recreational and non-beneficial use.
SECTION II: The specifications and engineering of the device must meet the stringent requirements that must be approved by the FDA in order for the device to be considered a “smoking aid”.

SECTION III: All harmful carcinogens not essential to the functionality of the device be completely removed to prevent any unnecessary adverse health effects that may cause harm due to frequent use of the device.

i) Let the term “carcinogen” be applied to all chemicals used in the production of the device as well as released when the device is used as intended.

SECTION IV: Nicotine present within the device be equal to or less than that of the traditional cigarette, and potency within each individual electronic cigarette be determined by the medical professional prescribing it to the patient, based upon the severity of the patient’s addiction.

SECTION V: Users of the electronic cigarette be subject to denial of use based upon the rules and regulations of the specific private locations in which the user is situated.

i) Only upon the consent of the manager or owner, may the use of the device be used within the vicinity.

SECTION VI: Any advertisements must list all side effects, dangers of addiction, and be perceived as an actual prescription drug. Advise all potential users to see a medical professional.

SECTION VII: All medically relevant information presented on the box must include but may not be limited to risks, possible side effects, as well as an accurate indication of the amount and proper dosage of nicotine within the device.

SECTION VIII: This bill will take effect 75 days after passage.