

This paper is written on behalf of the following medical organizations

IN SUPPORT OF TOTAL BAN OF NEW CIGARETTE PRODUCTS :

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**Total ban vis-à-vis regulation of electronic cigarettes and
heat-not-burn cigarettes : Hong Kong at the crossroads**

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Executive summary

1. A total ban on new tobacco products, including electronic cigarettes (e-cigarettes) and heated tobacco products (also known as heat-not-burn (HnB) cigarettes), will help to sustain and promote Hong Kong's image as a Smart City as well as a City of Vitality.
2. The 2011–2018 National Youth Tobacco Survey on U.S. schoolers who admitted to using e-cigarettes within the previous 30 days was striking and showed :

	2011	2018
High schoolers (aged 14-18)	220,000 (1.5%)	3.05 million (20.8%)
Middle schoolers (aged 11-14)	60,000 (0.6%)	570,000 (4.9%)

The rise was particularly significant at 36% (from 3.6 millions to 4.9 millions) during the year 2017-2018.

3. This epidemic level rise in youth e-cigarette use during 2017–2018 has been attributed, by the U.S. Centers for Disease Control and Prevention, to :
 - The recent popularity of e-cigarettes shaped like a USB flash drive;
 - These products can be used discreetly;
 - They have a high nicotine content; and
 - They come in flavors that appeal to youths.

In 2019, San Francisco became the first city in the U.S. to propose a law for total ban of e-cigarettes.

4. Recently, seizures in 35 e-cigarette users have been reported by the U.S. Food and Drug Administration (FDA), which further pointed out the known harms of e-cigarettes, including nicotine addiction especially in the young and the harmful effects on the airways and the lung. The FDA is also concerned that the design of the e-cigarettes may allow the user to inhale more than usual amount of nicotine, hence predisposing the user to seizures.
5. A 2018 position paper of the Forum of International Respiratory Societies emphasized that e-cigarette use has risen dramatically among youths worldwide. In addition to physical dependence, adolescents are susceptible to social and environmental influences to use e-cigarettes. The product design, flavors, marketing and perception of safety and acceptability have increased the appeal of e-cigarettes to young people, thus leading to

new generations addicted to nicotine. E-cigarette use can serve as a gateway to cigarette smoking in youths. Electronic aerosols contain potentially harmful ingredients that often lead to lung injury and chronic respiratory symptoms in users.

6. A 2019 position paper of the European Respiratory Society (ERS) on HnB cigarettes states that the claim by the tobacco industry research of a 90-95% reduction in harm as compared to conventional cigarettes is firmly refuted by a review of independent research data showing that HnB cigarettes contain significant amount of toxic, carcinogenic and potentially carcinogenic chemicals. The ERS states that “HnB cigarettes :
 - Are harmful and addictive,
 - Undermine smokers’ wish to quit,
 - Undermine ex-smokers’ wish to stay smoke-free,
 - Are a temptation for non-smokers and minors,
 - Impose a risk of re-normalization of smoking, and
 - Impose a risk of dual use with conventional cigarettes.”
7. The ERS cannot (and would not) recommend any product that is damaging to the lungs and human health. While HnB cigarettes may perhaps be less harmful for smokers, they nevertheless still remain toxic, carcinogenic, and highly addictive. Furthermore, smokers may switch to HnB cigarettes instead of quitting.
8. A recent Australian study showed no difference between the toxic effects of HnB cigarettes and conventional cigarettes on human airway cells. Thus the new tobacco products are not the safe substitute to cigarette smoking as promoted.
9. There is a trend towards an increase in e-cigarette use in adolescents and youths in Hong Kong and Hong Kong must not repeat the experience of the U.S. It should nip the looming epidemic of youth e-cigarette use in the bud by banning them.

Introduction

This paper will conclude that a total ban on new tobacco products, including electronic cigarettes (e-cigarettes) and heat-not-burn (HnB) cigarettes, will help to sustain and promote Kong Kong's image as a Smart City as well as a City of Vitality. This paper will tell you the story of the U.S. epidemic in youth use of e-cigarettes, with the implication that Hong Kong must not repeat the U.S. experience, and must be determined to nip a looming epidemic in the bud via an immediate total ban. By imposing a total ban on new tobacco products, Hong Kong will be sending a loud and clear message to her adolescents and youths, as a matter of urgency, about the harms and potential harms these new tobacco products can bring about, these harms and potential harms to be summarized here based on highly regarded international expert views.

Brief history of new tobacco products

In 2003, Hok Lik, a Chinese pharmacist and smoker based in Beijing, whose father had passed away from lung cancer, introduced the first commercially successful design of e-cigarettes intended to be a safer and cleaner way to inhale nicotine as a tobacco cessation resource.⁽¹⁾ Around 2006-7, e-cigarettes were introduced into European and U.S. markets. Since then, there have been ongoing wrestling of governmental bodies (in healthcare or otherwise) in the developed countries with the tobacco industry in their attempt, via legislation targeting at varying degree of regulation or at total ban of these products, to limit the damage potentially brought about by e-cigarettes.⁽¹⁾ Currently, 16 countries/regions impose a total ban on e-cigarettes, including Argentina, Brazil, Cambodia, Columbia, Greece, Jordan, Macau, Mexico, Panama, Qatar, Singapore, Thailand, Turkey, UAE and Uruguay. Over 30 countries ban the sale of e-cigarettes, including Australia and Venezuela.⁽²⁾

Meanwhile, evolving and newer generations of e-cigarettes have been introduced into the market. JUUL, an e-cigarette company founded by 2 graduate students at Stanford University in the late 2000s, came up with a progressively tailored product line seen as hi-tech and fashionable among the young. Currently, JUUL is controlling more than 70% of the U.S. e-cigarette market. The company JUUL is also embroiled in legal battles for reportedly having unleashed an epidemic of teenage vaping in the U.S.⁽³⁾

HnB cigarettes are the other major "new tobacco products", serving as an alternative to conventional cigarettes with claims of being less harmful. The most prominent product in this group is iQOS, which was first launched in Japan in 2014. Since then, iQOS has successfully penetrated major markets in the developed world.

The evolving epidemic of electronic cigarettes in the U.S.

Data from the 2011–2018 National Youth Tobacco Survey, as reported by the U.S. Centers for Disease Control (CDC) and Prevention, showed that the number of U.S. high school students (aged 14-18) who admitted to using e-cigarettes within the previous 30 days rose from 220,000 (1.5%) in 2011 to 3.05 million (20.8%), and for middle school students (aged 11-14), the figure rose from 60,000 (0.6%) in 2011 to 570,000 (4.9%) in 2018. The rise was particularly significant at 36% (from 3.6 millions to 4.9 millions) during the year 2017-2018.⁽⁴⁾

The epidemic level rises in youth e-cigarette use during 2017–2018 is “likely because of the recent popularity of e-cigarettes shaped like a USB flash drive, such as JUUL; these products can be used discreetly, have a high nicotine content, and come in flavors that appeal to youths.”⁽⁵⁾

In September 2018, to follow up on these CDC findings, the U.S. Food and Drug Administration (FDA) “issued more than 1,300 warning letters and civil money penalty fines to retailers who illegally sold e-cigarette products to minors, the majority of which were blu, JUUL, Logic, MarkTen XL, and Vuse; this was the largest coordinated enforcement effort in FDA’s history.”⁽⁵⁾

In March 2019, the city of San Francisco became the first city in the U.S. to have put forth a proposal for a new law to ban e-cigarette sales until their health effects are evaluated by the U.S. Government.⁽⁶⁾

Seizure as the newest potential side effect of e-cigarette use

On 3 April 2019, the FDA further notified the public of a “potential emerging safety issue linking the use of e-cigarettes, especially in youth and young adults, to the development of seizures. ... Seizures or convulsions are known potential side effects of nicotine poisoning and have been reported in scientific literature in relation to intentional or accidental swallowing of nicotine-containing e-cigarettes.” A recent FDA review of “voluntary adverse event reports for these products submitted to the agency and to poison control centers has identified a total of 35 reported cases of seizures following use of e-cigarettes between 2010 and early 2019.”⁽⁷⁾

The FDA pointed out that “nicotine isn’t a harmless substance, especially in the developing brains of our youth; the initiation to, and addiction to, nicotine by never-smokers – predominantly youth and young adults – raises public health concerns. These risks are among the many reasons why the FDA so strongly believes that no child should be using any tobacco product.”⁽⁷⁾

The FDA further stated that “even for adults, e-cigarettes are not risk free. Although one may argue that currently addicted adult smokers who completely switch off of combustible tobacco and onto e-cigarettes have the potential to improve their health, e-cigarettes still pose health risk, including the possible release of some chemicals at higher levels than traditional cigarettes and other potential health concerns,” which may not be immediately obvious given the short history of existence of e-cigarettes. The FDA held concerns about “the direct effects of e-cigarettes on the airways - including the potential for the use of such products to cause changes to airways that could be a precursor to cancer.”⁽⁷⁾ Nevertheless, the FDA clarified that it is not clear if there’s a direct relationship between the use of e-cigarettes and a risk of seizure.

The FDA postulated that there could be many factors that may lead to seizures. “For example, e-liquids have varying levels of nicotine concentrations, and some e-cigarette design features may allow a user to obtain high levels of nicotine quickly. E-cigarette use behaviors also vary and users may deliberately or inadvertently inhale more nicotine than would typically occur. Additionally, some of the reported incidents may not be directly related to e-cigarettes use – the seizures may have been triggered by an underlying medical condition, use of other substances, or other factors.”⁽⁷⁾

The FDA has tasked itself with further scientific investigation to more fully understand other potential risks associated with e-cigarette use, with close monitoring and with taking additional steps as necessary to protect the public, especially the nation’s youth, from the dangers of e-cigarettes and other tobacco products.

Recent escalation of e-cigarette use in youths worldwide has led to new generations of nicotine addicts, says the international expert forum

In 2018, a position paper on e-cigarette use in youths formulated by the Forum of International Respiratory Societies was published. Member societies of the Forum include the key international respiratory organizations, which are the American College of Chest Physicians, the American Thoracic Society, the Asian Pacific Society of Respiriology, Association Latinoamericana del Torax, the European Respiratory Society, the International Union Against Tuberculosis and Lung Disease, the Pan African Thoracic Society, the Global Initiative for Asthma, and the Global Initiative for Chronic Obstructive Lung Disease. The paper is focused on children and adolescents, who are highly susceptible to nicotine addiction, which affects their brain development. Once addicted to nicotine, young people are at risk of becoming lifelong tobacco consumers. Concern raised by the Forum over e-cigarettes includes⁽⁸⁾:

1. The use of e-cigarettes has risen dramatically among youths worldwide.

2. In addition to physical dependence, adolescents are susceptible to social and environmental influences to use e-cigarettes. The product design, flavours, marketing and perception of safety and acceptability has increased the appeal of e-cigarettes to young people, thus leading to new generations addicted to nicotine.
3. Initiation of e-cigarette use is strongly associated with the subsequent initiation of combustible tobacco product use among adolescents, supporting the concern for e-cigarettes in youths serving as a gateway to cigarette smoking.
4. Electronic aerosols contain potentially harmful ingredients that often lead to lung injury and chronic respiratory symptoms in users.

The Forum made seven recommendations to protect youths from use of e-cigarettes, including various forms of governmental regulations and bans.⁽⁸⁾

HnB cigarettes pose toxic, carcinogenic, and addictive harms in much more far-reaching dimensions than the harms the tobacco industry is willing to admit, says the European Respiratory Society

Heated tobacco products, also commonly known as “Heat-not-Burn” (HnB) cigarettes, consist of a small tobacco stick that is heated electrically, rather than burned. Such products include the “iQOS” and “glo”.

The European Respiratory Society (ERS) was formed in 1990 having merged two European respiratory societies and it has since become the key force in the education and promotion of respiratory health across the European continent. The ERS also works closely with the European Union (EU) in formulating respiratory health policies for the EU.

The ERS issued a position paper on heated tobacco products just very recently. Unlike their earlier task force report on e-cigarettes⁽¹⁰⁾, in which the focus was on nicotine addiction in the young, the ERS sounded more forthright and black-and-white in the proven and potential harms of HnB cigarettes on humans. The position paper started off arguing that the claim by the tobacco industry with regard to the safety of HnB cigarettes is likely misleading. In a press release by the tobacco industry, “the main ingredient in their heated tobacco products is water, whereas the main ingredient is tar in conventional cigarettes. They also claim that there is a 90-95% reduction in harmful and potentially harmful substances and toxicity.”⁽⁹⁾

The table below is prepared based on the data from independent research as pointed out in the ERS position paper, showing the harmful and potentially harmful chemicals found in HnB cigarettes, which contrast drastically with the claims by the tobacco industry.

Chemicals identified in HnB cigarettes	Nature of harm on health	Amount change from conventional cigarettes
Acrolein	Toxic & irritant	Minus 18%
TSNAs	Carcinogen	Minus 80%
Formaldehyde	Potential carcinogen	Minus 26%
Benzaldehyde	Potential carcinogen	Minus 50%
Acenaphthene	Potential carcinogen	Plus 300%
Nicotine	Same as conventional cigarettes	No change
Tar	Same as conventional cigarettes	No change

Furthermore, “a recent study has shown that users of iQOS may be forced to smoke at a rapid pace which could lead to an increase in intake of potentially carcinogenic carbonyls and nicotine, inducing a high level of nicotine dependence.”⁽⁹⁾ Hence HnB cigarettes pose toxic, carcinogenic, and addictive harms in much more far-reaching dimensions than the harms the tobacco industry is willing to admit.

Heat-not-burn cigarettes are as harmful as conventional cigarettes in damaging lung cells, says an Australian study

A study e-published in February 2019 indeed raised stern concerns about the new tobacco products: a research group based in Australia studied the toxicity of tobacco in various forms on the human airway epithelial and smooth muscle cells, and they noted that new heated tobacco devices are comparable to vaping and conventional cigarettes in causing various levels of toxicity to the human lung cells.⁽¹¹⁾ The researchers conclude that these new tobacco devices are not the safe substitute to cigarette smoking as promoted.

Clear-cut position of the ERS (as well as the European Commission) on the vices of heated tobacco products

The ERS states that “Heated tobacco products :

1. Are harmful and addictive,
2. Undermine smokers’ wish to quit,
3. Undermine ex-smokers’ wish to stay smoke-free,
4. Are a temptation for non-smokers and minors,
5. Impose a risk of re-normalization of smoking, and
6. Impose a risk of dual use with conventional cigarettes”⁽¹⁰⁾

The ERS has found no evidence that “HnB cigarettes are efficient as a smoking cessation aid”, since users stay as nicotine-addicted users, and may stand the chance of being dual users. “Ex-smokers and never-smokers might be tempted to start using this ‘harmless’ product”, creating a scenario of HnB serving as gateway to habitual smoking.⁽¹⁰⁾

The ERS position paper further emphasizes that the European Commission has enforced, with regard to the sale, presentation, and manufacturing of these products within the European Union, total ban on misleading elements or suggestions that a particular tobacco product is less harmful than others.⁽¹⁰⁾

The Hong Kong Scene

Noticeable trend in popularity of the new tobacco products

Hitherto in Hong Kong, there have been no governmental restrictions on the use of new tobacco products. Such products can hence be found on the shelves of local retail shops, and users can be seen in the streets as well as indoors. The Hong Kong Council on Smoking and Health (COSH) reported, at a press release in September 2018, their local survey of 2,076 pupils from 16 primary schools in 2016-17, and 4,599 pupils from 26 schools in the following year. They noted that the proportion of Primary Two to Four pupils who had tried e-cigarettes increased between the 2016-17 and 2017-18 school years, from 2.9% to 4.5%, which represents a rise of 55% in a year.⁽¹²⁾ Hong Kong may very well be heading towards the “epidemic” of e-cigarette use in youths currently experienced by the western countries.

It is time to nip the new habit in the bud to avert a looming epidemic!

It therefore comes as an opportune time to stop this looming epidemic in Hong Kong when the Chief Executive of Hong Kong Mrs. Carrie Lam announced earlier this year in her second policy address that the government seeks to implement a near-total ban of new cigarette products in Hong Kong, making the supply, sale and promotion of e-cigarettes and other new cigarette products illegal in Hong Kong. This move, as interpreted by the South China Morning Post, seeks to nip the relatively new habit in the bud before it becomes entrenched in the city.⁽¹³⁾ This is a very bold and yet necessary move in order not to repeat the history experienced by overseas developed countries. This proposal by the CE Mrs. Lam is currently being deliberated by the Legislative Council as we speak!

It is important to note that regulation of new tobacco products instead of a total ban, as put forth by some opposing voices in the community, would tacitly imply legalization of the new cigarette products in Hong Kong. Given the U.S. and European experience, both regions having legalized the new tobacco products only to realize the detrimental effects of these products on youths, the Hong Kong must not repeat the painful experience of the Western countries. It is high time that the Hong Kong community join hands and speak the same voice in supporting total ban of these new tobacco products. Readers are encouraged to join in the signature drive at the COSH (<https://quitters.smokefree.hk/support>) or write to the Government directly.

Conclusion

There is no question that e-cigarettes, packaged in various flavours and appearances, would be very tempting to our young. Nicotine addiction and other possible harms from e-cigarette use in the young is now a global threat. There is also no doubt that the tobacco industry has downplayed the harmfulness of the HnB cigarettes, which contain toxic, carcinogenic and potentially carcinogenic, and addictive chemicals. The concern for these products being a gateway to cigarette smoking is real. Recent finding of similar damage to the lung cells by e-cigarettes, HnB cigarettes and conventional cigarettes further adds to the evidence that these new devices are not the safe substitute to cigarette smoking as promoted.

Hong Kong is now at the crossroads on this issue. The governmental move for total ban is history in the making, and, such legislation, if passed, will protect our youths in generations to come, unlike our American counterparts who are just beginning to come to grips with an escalating epidemic of youth e-cigarette use. A total ban on new tobacco products, including e-cigarettes and HnB cigarettes, will no doubt help to sustain and to promote Kong Kong's image as a Smart City as well as a City of Vitality.

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