

## Why We Need to Comprehensively Prohibit the Manufacture and Sale of Electronic Nicotine Delivery Systems (ENDS)?

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### Abstract

In the interest of public health, manufacture and sale of unapproved harmful products like Electronic Nicotine Delivery Systems (ENDS), must be prohibited globally at the earliest as has already been done by many countries [1].

ENDS, also called as E-cigarettes have different sizes and shapes. JUUL, the most popular brand looks like a pen drive and the nicotine content in one refill may be as much as one packet of cigarettes. In recent years there has been evolving evidence about the health risks of e-cigarettes especially on the lung health.

**Keywords:** *Electronic Nicotine Delivery Systems (ENDS); E-cigarettes*

### Introduction

E-Cigarettes have a battery, cartridge and an atomizer. The cartridge contains propylene glycol, flavors to make it attractive to young and liquid nicotine. Chemicals like acrolein and formaldehyde may be present and can lead to lung damage. Due to loopholes in law or lack of knowledge, these products are sold online even when unapproved in some countries. Brands of ENDS may contain different content of chemicals and Nicotine with diverse delivery mechanisms.

### Do the E-Cigarettes promote dual usage?

Nicotine is highly addictive. Evidence is available that using E-Cigarettes promotes dual usage i.e. if a young adult uses an e-cigarette; they are at an increased risk of using normal tobacco cigarettes [2].

### The prevalence of E-Cigarettes use in youth

As per data of 2018 National Youth Tobacco Survey (NYTS) more than 3.6 million children are presently using e-cigarettes [3]. One of the reasons for rapid increase in prevalence of use e-cigarettes in kids is addition of flavorings [3,4].

### Marketing and promotion

ENDS are being promoted and advertised as less harmful products mainly on social media sites largely used by youth e.g. Facebook, Instagram and twitter etc. These are also promoted as a way out to circumvent smoke free rules. Most of the popular brands of e-cigarettes are owned by big tobacco companies, with a plan to expand their range of tobacco products while offering a so called harm reduction products.

### Health effects of use of ENDS

Nicotine the addictive chemical present in aerosol of E-Cigarettes and tobacco cigarettes can lead to issues in foetus development in pregnancy and also cause cardiovascular disease [5]. It effects brain development leading to anxiety and learning disorders. In normal experimental conditions of use, some metals including chromium, nickel and lead, have been found in aerosols of some products, with concentrations even more than tobacco cigarettes [6].

The American Lung Association has asked Food and Drug Administration to regulate ENDS and other unregulated tobacco products because in five years (2011-15) there has been an almost 900% increase in its use among high school students [7].

In experimental studies it was found that neutrophils which are useful in combating pathogens may also cause lung diseases such as and cystic fibrosis and COPD [8].

It has also been found that even without Nicotine, vanilla and cinnamon flavours in E-Cigarettes may damage lungs [9].

Popcorn lung condition was earlier identified among popcorn factory workers who inhaled the chemical Diacetyl in the workplace. It is a rare medical condition that damages the bronchioles, causing breathing difficulties [10].

As per a study propylene glycol and vegetable glycerin inhaled as ingredients in e-cigarettes, the toxicity is proportionate to content inhaled [11].

EVALI (E-cigarette, or vaping, product use-associated lung injury) led to 68 deaths in 29 states and the District of Columbia. till February 2020 [12].

### Are E-Cigarettes helpful in tobacco cessation?

FDA has not approved ENDS for the purpose of cessation, so professional counseling and FDA approved products are recommended for cessation.

### Is secondhand E-cigarette emission risky?

The aerosol of E-Cigarettes inhaled as secondhand smoke contains toxins, ultrafine particles and nicotine, as per, Dr. Stan Glantz, Director for the CTCRE at UCSF, which could trigger Myocardial Infarction and lung conditions like Asthma etc [13].

### The ban on ENDS and similar products in India

In 2016 Conference of parties under WHO FCTC, held in India recommended appropriate steps prohibiting these products by member countries.

A white paper from the Indian Council of Medical Research in May 2019 recommended a prohibition on all types of Electronic Nicotine Delivery System products in the country.

By enacting The prohibition of electronic cigarettes (Production, manufacture, import, export, transport, sale, distribution, storage and advertisement) ACT, 2019 NO. 42 OF 2019 [5<sup>th</sup> December, 2019.], The Government of India has stopped the sale of e-cigarettes (and other electronic nicotine delivery systems [ENDS], including PMI's IQOS heated tobacco product) [14].

A study published very recently on 9<sup>th</sup> October 2020 has concluded that in spite of very stringent law, e-cigarettes are available on e-commerce sites in India [15].

### Conclusion

All the countries must prohibit the manufacture and sale of Electronic Nicotine Delivery Systems (ENDS) to save youth from addiction and harms of Nicotine as done by India and many other countries. But the manufacturers of ENDS may try to circumvent the strictest of legislations, so strict implementation of law banning sale of ENDS even on e-commerce sites needs to be done.

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