

THE SCIENCE ON E-CIGARETTES & VAPING – HARM REDUCTION STRATEGY

Public Health England, a leading public health agency in the United Kingdom, published a report on e-cigarettes on February 6, 2018. While the report does not endorse e-cigarette as “safe”, **it concludes:**

- “Vaping poses only a small fraction of the risks of smoking and switching completely from smoking to vaping conveys substantial health benefits over continued smoking. The previous estimate that, based on current knowledge, **vaping is at least 95% less harmful than smoking remains a good way to communicate the large difference in relative risk unambiguously so that more smokers are encouraged to make the switch from smoking to vaping.**”
- Citing studies showing e-cigarettes to be 50% more effective than over-the-counter NRT for (cigarette displacement), Public Health England concluded that “While caution is needed with these figures, the evidence suggests that e-cigarettes have contributed tens of thousands of additional quitters [switchers] in England annually.”
- E-cigarettes could be contributing to at least 20,000 (lower bound estimate) or 57,000 (upper bound estimate) successful new quits per year and possibly many more.
- E-cigarette use is associated with improved quit success rates over the last year and an accelerated drop in smoking rates across the country
- The evidence does not support the concern that e-cigarettes are a route into smoking among young people (youth smoking rates in the UK continue to decline, regular use is rare and is almost entirely confined to those who have smoked)

The National Academy of Sciences, Engineering, and Medicine (NASEM) is a private, non-profit institution created by Congress in 1863, to provide expert advice on important issues in science, engineering, and medicine. In 2016 the Center for Tobacco Products at FDA commissioned NASEM to convene a committee of experts to review the available evidence pertaining to the health effects of electronic cigarettes. NASEM released a report entitled, “Public Health Consequences of E-Cigarettes” on January 23, 2018. While the NASEM report also does not endorse e-cigarettes as “safe”, it does find evidence suggesting that they are safer than combustible e-cigarettes.

- “There is substantial evidence that except for nicotine, under typical conditions of use, exposure to potentially toxic substances from e-cigarettes is significantly lower compared with combustible tobacco cigarettes.”
- NASEM found that, while “the exposure to nicotine and toxicants [from e-cigarettes] is dependent on user and device characteristics”... “Taken together, the evidence in support of these conclusions suggests that e-cigarette aerosol contains fewer numbers and lower levels of toxicants than smoke from combustible tobacco cigarettes.”

Additionally, in a summary of the NASEM report for practice guidance published in the Journal of the American Medical Association (JAMA) Internal Medicine on May 7, 2018, the chair of the NASEM committee and a contributing author concluded:

- “If a smoker’s initial treatment has failed or not been tolerated, or if the smoker refuses to use approved medications and counseling and wishes to use e-cigarettes to aid (cigarette displacement), physicians should encourage the smoker to switch completely to e-cigarettes.”

- “Concerning harm reduction, completely substituting e-cigarettes for combustible cigarettes conclusively reduces exposure to many toxicants and carcinogens present in combustible cigarettes, and would be expected to result in reduced adverse health outcomes.”

The American Cancer Society (ACS) approved a position paper of scientific, clinician, and policy views and recommendations on electronic cigarettes in February 2018, updated in June 2018. The ACS recommends that clinicians support all attempts to quit the use of combustible tobacco and work with smokers to eventually stop using any tobacco product, including e- cigarettes, but notes that “some smokers, despite firm clinician advice, will not attempt to quit smoking cigarettes and will not use FDA approved cessation medications. These individuals should be encouraged to switch to the least harmful form of tobacco product possible; switching to the exclusive use of e-cigarettes is preferable to continuing to smoke combustible products.” The ACS also states “...Based on currently available evidence, using current generation e-cigarettes is less harmful than smoking cigarettes, but the health effects of long- term use are not known.”

The Royal College of Physicians published a new report in 2018 titled ‘Nicotine without Smoke: Tobacco Harm Reduction’, which concluded that e-cigarettes are likely to be beneficial to UK public health. Smokers can therefore be reassured and encouraged to use them, and the public can be reassured that e-cigarettes are much safer than smoking.

Some observations made in the Report are as follows:

- Although smoking prevalence in the UK has reduced to 18%, 8.7 million people still smoke. Harm reduction provides an additional strategy to protect this group of smokers from disability and early death.
- **E-cigarettes are not a gateway to smoking** – in the UK, use of e-cigarettes is limited almost entirely to those who are already using, or have used, tobacco.
- **E-cigarettes do not result in normalization of smoking** – There is no evidence that either nicotine replacement therapy (NRT) or e-cigarette use has resulted in renormalisation of smoking. None of these products has to date attracted significant use among adult never-smokers or demonstrated evidence of significant gateway progression into smoking among young people.
- **E-cigarettes and quitting smoking** - among smokers, e-cigarette use is likely to lead to quit attempts that would not otherwise have happened, and in a proportion of these to successful cessation. In this way, e-cigarettes can act as a gateway from smoking.
- **E-cigarettes and long-term harm** - the possibility of some harm from long-term e-cigarette use cannot be dismissed due to inhalation of the ingredients other than nicotine, but is likely to be very small, and substantially smaller than that arising from tobacco smoking. With appropriate product standards to minimize exposure to the other ingredients, it should be possible to reduce risks of physical health still further. Although it is not possible to estimate the long-term health risks associated with e-cigarettes precisely, the available data suggest that they are unlikely to exceed 5% of those associated with smoked tobacco products and may well be substantially lower than this figure.

Cancer Research UK found that people who swapped smoking regular cigarettes for e-cigarettes or nicotine replacement therapy (NRT) for at least six months, had much lower levels of toxic and cancer-causing substances in their body than people who continued to use conventional cigarettes.

- For the first time, researchers analysed the saliva and urine of long-term e-cigarette and NRT users, as well as smokers, and compared body-level exposure to key chemicals.
- Ex-smokers who switched to e-cigarettes or NRT had significantly lower levels of toxic chemicals and carcinogens*** in their body compared to people who continued to smoke tobacco cigarettes. But, those who used e-cigarettes or NRT while continuing to smoke, did not show the same marked differences, highlighting that a complete switch is needed to reduce exposure to toxins.
- Their results also suggest that while e-cigarettes are not only safer, the amount of nicotine they provide is not noticeably different to conventional cigarettes. This can help people to stop smoking altogether by dealing with their cravings in a safer way.”
- This study adds to growing evidence that e-cigarettes are a much safer alternative to tobacco and suggests the long term effects of these products will be minimal.