

Vaping-related lung illnesses: time to act

By 2021, Euromonitor, a strategic market research provider, estimates that 55 million people worldwide will regularly vape, with the USA being the largest consumer. Worryingly, vaping is most prevalent in young people, and especially among teenagers—doubling in popularity in US high school students between 2017 and 2018. The range of flavours, the perception that it is comparatively healthy, and that it is more socially acceptable than tobacco are driving this rapid increase in use. However, a study by Jennifer Layden and colleagues published in the *New England Journal of Medicine* on Sept 6, 2019, challenges the biggest of these misconceptions by providing more evidence linking pulmonary illness to e-cigarette use—adding to the number of reported cases, which now stands at more than 200 in 25 US states since June, 2019.

This new study reports on 53 patients identified as part of a pulmonary disease cluster in the states of Wisconsin and Illinois. All patients were regular e-cigarette users with a median age of 19 years. The most common respiratory symptoms at presentation were shortness of breath, cough, and chest pain along with gastrointestinal symptoms including nausea, vomiting, diarrhoea, and abdominal pain. 48 patients had an abnormal chest radiograph showing complications such as pneumomediastinum, pleural effusion, or pneumothorax. Furthermore, 50 needed hospitalisation; most of whom were admitted to intensive care for respiratory failure. Nine of the 53 patients were also confirmed independently as having acute respiratory distress syndrome. Given the plausibility of the connection between these symptoms, the increasing number of cases nationwide, and the patients' vaping behaviours, the US Centers for Disease Control and Prevention have warned that there might be a link to street-bought, illegal products, and advised that people should only buy vaping paraphernalia from official outlets and seek immediate medical attention if they have any health concerns.

Liquids used in vaping devices contain various chemicals and contaminants that cause adverse health effects. Many pulmonary conditions have been linked to e-cigarettes in individual case reports, including alveolar haemorrhage, acute interstitial lung disease, bronchiolitis, and pneumonitis. Reflecting on the evidence so far, although a definitive cause-and-effect association has yet to be proven, the rising frequency of lung disease in e-cigarette

users must now trigger a far higher concern level for policy makers—particularly because the connection between many of these lung conditions and future development of lung cancer is so well established. In a 2018 *Lancet Oncology* Editorial, we called for “a new, broader set of measures in the WHO Framework Convention on Tobacco Control”. Layden's study underscores the urgent need to include vaping in this treaty.

A broader remit for the WHO Framework Convention on Tobacco Control would ensure that measures are in place internationally to prevent the US findings from becoming a global epidemic and enable more restrictive regulation around marketing of vaping products to prevent deceitful or misleading practices by vape manufacturers. For example, in a letter on Sept 9, 2019, the US Food and Drug Administration wrote to Juul Labs (San Francisco, CA, USA) criticising them for illegally marketing their e-cigarettes as less harmful than regular cigarettes and instructing the company to make immediate corrections or face enforcement actions. This letter followed previous testimony to a House Oversight and Reform subcommittee into Juul's marketing and promotion practices, which accused Juul of using a “sophisticated program” to target children and teenagers, including at schools and summer camps. There is considerable déjà vu regarding these methods of promoting e-cigarettes—similar lies and promotional campaigns were long-peddled by the tobacco industry until tougher rules were enforced. Ironically, the USA remains one of the few nations worldwide that has yet to ratify the WHO Framework Convention on Tobacco Control, so even with an extended remit, the Framework Convention could not be used to help bolster efforts by US authorities and health practitioners.

In 1610, Sir Francis Bacon noted that tobacco smoking seemed to be highly addictive and was a tough habit to quit. Later, in 1643, the Chinese scholar, Fang Yizhi, wrote that smoking tobacco for too long would “blacken the lungs”. Despite this foreboding, it took more than 400 years to generate the scientific evidence and political will to act against the scourge of tobacco. With vaping increasing at an unprecedented rate, we need to act swiftly to ensure we do not blunder in to another long-running unhealthy, life shortening, odyssey of replacing one bad habit with another. ■ *The Lancet Oncology*



Vaping/Phanid/Science Photo Library

For more on **Euromonitor's data on vaping** see <https://blog.euromonitor.com/growth-vapour-products>

For more on **pulmonary illness and e-cigarette use in Illinois and Wisconsin** see <https://www.nejm.org/doi/full/10.1056/NEJMoa1911614>

For more on the **CDC warning about lung illness and e-cigarette products** see https://www.cdc.gov/tobacco/basic_information/e-cigarettes/severe-lung-disease.html

For the **Lancet Oncology's 2018 editorial on vaping** see **Editorial** *Lancet Oncology* 2018; **19**: 1543

For the **FDA letter to Juul Labs** see <https://www.fda.gov/inspections-compliance-enforcement-and-criminal-investigations/warning-letters/juul-labs-inc-590950-09092019>