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Professor Brendan Murphy, Chief Medical Officer
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Dear Professor Murphy,

We write about the statement on vaping, *E-cigarettes linked to severe lung illness*, published on 13 September 2019. [\[link\]](#) Based on the latest evidence, we believe this report needs to be updated to provide more accurate advice to the public.

The current statement implies that vaping nicotine with e-cigarettes is the cause of the outbreak of severe lung injury in the US. 'Vaping' is the route of administration that has been implicated in all of these injuries.

However, it is now clear that the vast majority of cases, if not all, are due to vaping black-market, contaminated THC (cannabis) oils purchased from street dealers in prefilled cartridges ('carts'). [\[CDC, 1 November 2019\]](#) These products have proliferated recently in the US and some black-market products are being sold in packaging that imitates legal cannabis vaping products.

According to the Centers for Disease Control and Prevention, 86% of victims reported using THC products in the 3 months prior to symptom onset, where product information was available. [\[CDC, 1 November 2019\]](#)

The head of the CDC investigation, Dr Dana Meaney-Delman recently said "We've narrowed this clearly to THC-containing products that are associated with most patients who are experiencing lung injury". [\[Washington Post\]](#)

Investigation has uncovered the steps in the illicit supply chain for THC. [\[Leafly\]](#) Suspected toxic agents found in illicit THC cartridges include Vitamin E acetate oil, pesticides like myclobutanil and heavy metals, although no single cause has been identified. [\[CNBC\]](#)

However, the CMO statement focuses on nicotine vaping as the cause and attributes only a minor role to THC. "In some cases overseas, the use of cannabinoids has also been reported." This is misleading and diverts the focus from the major cause, tainted THC products.

The term "e-cigarette" is specifically used for nicotine vaporisers, not THC vaping. The reference to e-cigarettes in the CMO statement implies that nicotine vaping is the cause.

Nicotine vaping can be reasonably excluded

The current outbreak does not appear to be associated with nicotine vaping. There are 14 million adult nicotine vapers in the US and commercial nicotine vaping products have been available for over 10 years. There have never previously been any serious respiratory adverse effects or deaths from vaping nicotine. [\[Polosa 2019\]](#)

The epidemiology of this outbreak suggests a new toxic agent. The sudden onset in a specific geographic region, and the fact that it largely affects young men is typical of a reaction to a batch of illicit drugs. 70% of patients are male and the median age is 24 years. [\[CDC, 1 November 2019\]](#)

This is further reinforced by reports that "suggest that patients have typically obtained their THC-containing e-cigarette, or vaping products through informal sources, such as friends or illicit in-person and online dealers". [CDC, 1 November 2019]

The pathology is of an acute lung injury due to a new toxin rather than from chronic exposure to traditional nicotine products. [Mukhopadhyay 2019; Christiani 2019]

Although 11% of cases report using nicotine liquids only, this number may be exaggerated. The CDC states that self-reports "might be subject to recall bias, as well as social desirability bias because nonmedical marijuana is illegal in many states. Therefore, underreporting might have occurred." Many users are also underage and would be reluctant to admit THC use. [CDC, 1 November 2019]

The CDC reported that some patients "who initially denied THC-containing products in interviews ... were later found to have used THC through review of medical charts, reinterview, or cross-referencing with friends who were also interviewed as patients. [CDC, 27 September 2019]

No cases of vaping-related lung injury have been linked to nicotine vaping and no laboratory testing of nicotine liquids has revealed any contaminants of concern. [CDC, 25 October 2019]

The CDC also notes that patients may not actually know what was in the products they consumed, especially if they bought them online or off the street from illegal distributors.

Assessments from the UK

Public Health England [PHE, 29 October 2019]:

- The outbreak is "not a problem linked to long-term use of regulated nicotine vaping products"
- "PHE has not changed its advice on nicotine containing e-cigarettes: Smokers should consider switching completely and vapers should stop smoking."
- "The evidence still shows that vaping carries a small fraction of the risk of smoking"

The UK Royal College of Physicians update [RCP, 25 October 2019]:

- "Our advice on e-cigarettes remains unchanged — vaping isn't completely risk-free but is far less harmful than smoking tobacco"
- "If you've switched to vaping and are finding it helpful to stop you smoking, and are not suffering any adverse effects, then carry on, don't go back to smoking"
- "Vapers should only be buying from mainstream suppliers who are selling regulated products, to use black market products may carry potentially lethal risks"

The CDC "recommends that persons should not use e-cigarette, or vaping, products containing THC", but is more cautious, stating "Because the specific compound or ingredient causing EVALI is not known, persons should consider refraining from use of all e-cigarette, or vaping, products". [CDC, 1 November 2019] This caution is excessive in our view.

Why correcting the public message is important

Accurate and specific information is necessary to retain confidence in government advice and to protect public health. It is particularly important to be clear that 'vaping' is just a delivery system and to distinguish vaping nicotine from vaping contaminated, black-market THC.

Smoking is still the leading preventable cause of death and illness in Australia. [AIHW] Vaping nicotine is an effective and popular quitting aid and is having a significant population effect in countries where it is available. [Zhu 2017; Johnson 2018; Jackson 2019]. A recent study estimated that up to 70,000 smokers quit in England in 2017 with nicotine vaping who would not otherwise have quit. [Beard 2019] A high quality randomised controlled trial from the

UK found that vaping was twice as effective for smoking cessation as NRT (88% used combination NRT) after 12 months. [[Hajek 2019](#)]

Vaping regulated nicotine products carries risks and should not be recommended to those who do not already smoke. But the best evidence we have is that it is a far less harmful alternative for existing smokers who would otherwise continue to smoke. [[PHE 2018](#); [RCP 2016](#); [NASEM 2019](#)] Harm reduction does not mean the absence of “any” harm. But a reduction in harm can still save lives.

Following are our recommendations for public advice:

1. Provide a clear message that the vast majority of cases of vaping-related lung injury are associated with unregulated, black-market, contaminated THC products from street vendors. These illicit products, including the Dank Vapes brand, are now available in Australia. It is vital that the public is informed of the risks before a similar outbreak occurs in Australia.
2. Be clear that legal, regulated THC products prescribed for medicinal purposes are not involved. It is not the THC which is causing the problem, it is the contaminants.
3. Avoid misleading statements that misattribute serious harm to nicotine vaping as this will discourage smokers from switching to the much lower-risk alternative and will encourage vapers to switch back to smoking, as has already been reported in the US. Avoid the term "e-cigarette" when referring to THC vaping. Be clear that “vaping” is a delivery method and that risk depends on the substance used.
4. Advise vapers of nicotine who have quit smoking **not** to go back to smoking.
5. Provide more accurate information about the relative risk of vaping nicotine and smoking.
6. Advise users to buy vaping products from reputable suppliers and avoid black-market products.
7. Legalise and regulate nicotine vaping products to minimise the risks from black-market suppliers. Vaping will continue to increase in Australia and regulation of nicotine liquid as a consumer product is needed to ensure quality and safety. The lung injury outbreak is a good example of the potential harm caused by an unregulated black-market.

We are happy to provide further information if requested.

We look forward to your response.

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Potential conflicts of interest

Joe Kosterich, Colin Mendelsohn and Alex Wodak are Directors of the Australian Tobacco Harm Reduction Association (www.athra.org.au), a registered health promotion charity. ATHRA is funded by public donations and does not accept donations from tobacco companies or from the vape industry. To establish ATHRA as a registered charity in 2017 some financial support was accepted from the small business vape retail sector. ATHRA has not accepted industry funding since March 2019.

None of the Directors have ever personally accepted funds from the tobacco or vape industries.

Wayne Hall and Julian Savulescu declare no conflict of interests.