

E-cigarettes and vaping

Electronic or e-cigarettes are devices which heat liquid (called ‘e-liquid’) into an aerosol (or ‘vapour’) which is then inhaled into a person’s lungs. Most e-liquids are flavoured, with some containing nicotine, and others not.

Two of the major concerns raised by health professionals about e-cigarettes, particularly in relation to young people, are as follows:

- they are promoted as a ‘safe alternative’ to smoking
- aggressive marketing challenges many of our key anti-smoking messages

As the use of e-cigarettes increases and vaping becomes more visible, whether it be via advertising, television programs or movies, or through personal contact, it is important that young people have access to accurate and up-to-date information on these devices.

Two questions health teachers are likely to be asked by students in this area are as follows:

Is vaping safe?

Some of the concerns about their safety include the following:

- nicotine is addictive and toxic in all forms
- products contained in e-cigarettes are not regulated
- e-cigarette use is likely to lead to eventual smoking of traditional cigarettes
- e-cigarettes do not simply produce ‘harmless water vapour’ and may expose users to chemicals and toxins such as formaldehyde and heavy metals

- the potential for poisoning and subsequent lung damage associated with vaping and e-cigarettes

Are e-cigarettes legal in Australia?

This continues to be a complex issue due to some devices containing nicotine while others do not. Those that contain nicotine are illegal across the country. Those that don’t are legal for use by adults in all states and territories apart from WA, where although use is not illegal, the sale of anything that resembles a tobacco product is. It is important for teachers to try to keep up-to-date with developments in this area.

Teachers need to consider the following points around e-cigarettes should they be conducting any tobacco or smoking prevention activities in their classroom:

- e-cigarettes and the marketing around these products challenge some of our key tobacco prevention message, i.e., the anti-social nature of smoking and smoking is not glamorous
- vaping may be ‘safer’ than smoking, but that does not mean it is ‘safe’
- we do not know enough about e-cigarettes to say that they are a safe alternative to cigarette smoking and there is evidence to indicate that they pose a potential health hazard not only to the user but to others around them

As such, teachers should consider raising the issue of e-cigarettes and their related harms when delivering prevention messages.

Background

Electronic nicotine delivery systems (ENDs), or as they are better known, electronic cigarettes or e-cigarettes are battery-powered devices that deliver an aerosol (‘vapour’) that may or may not contain nicotine, thus removing the risk of users coming into contact with tobacco smoke, i.e., instead of smoking, they are ‘vaping’. As a result, e-cigarettes have been heavily promoted as a healthier alternative to tobacco smoking, as well as a way to circumvent

smoking restrictions by enabling users to smoke (or ‘vape’) anywhere. In addition, there is much debate in the tobacco prevention field about the role these devices may play in helping smokers to quit or reduce their cigarette use.

The vapour comes from an ‘e-liquid’ cartridge. E-liquids are often flavoured, with over 7,000 flavours available ranging from fruit through to chocolate. Some contain nicotine, thus providing the user with a nicotine ‘hit’, while others contain only a flavouring.

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These devices can also be used to vape cannabis. Vaping cannabis involves inhaling heated oil contained in an e-liquid 'pod' via an e-cigarette. Liquid THC is a form of oral tincture that is extracted from the cannabis buds and can be inhaled via vaping. THC e-liquid pods can be unregulated and contain harmful additives such as vitamin E acetate that has been recently implicated in a form of lung damage known as EVALI (e-cigarette or vaping related product use associated lung injury). It is important to remember that cannabis use remains illegal in most states and territories of Australia.

E-cigarettes are usually shaped and coloured to make them look like cigarettes or other tobacco products so that when they are used they simulate the act of tobacco smoking. They can be either disposable or re-usable and in addition to the cartridge, most devices contain a battery, a sensor to activate the power from the battery, and an aerosol generator that turns the e-liquid into an aerosol.

E-cigarettes have been aggressively marketed across the world (online and through television, radio and print), with advertising similar to that rolled out by tobacco companies in the 1950s and 60s. Some of the issues raised around this marketing include the following:

- advertises promote vaping as glamorous and sexy
- vaping is often compared to smoking and marketed as less harmful, not only for the user but the people around them
- celebrities are used to endorse the products
- promoted as a way to circumvent smoking restrictions because users are now 'vaping' and not smoking

Over 450 brands of e-cigarettes have been identified and US\$3 billion was spent on ENDS products globally in 2013. It is believed that ENDS sales may surpass those of traditional cigarettes in 25 years, but some experts believe this could happen as early as 2024.

Across most Australian states and territories, however, e-cigarettes are now regulated in the same way as smoking products and their sale is outlawed in WA.

Regardless, as the use of e-cigarettes increases and vaping becomes more visible, whether it be via advertising, television programs or movies, or through personal contact, it is important that young

people have access to accurate and up-to-date information on these devices.

Two questions that health teachers are likely to be asked by students in this area are as follows:

- **Is vaping safe?**
- **Are e-cigarettes legal in Australia?**

Is vaping safe?

The research into the effects of e-cigarettes and vaping lags well behind their increasing popularity and so, at this time, we cannot really say what the long-term effects of using these devices will be. That said, they are certainly not 'risk-free' and there are a number of key messages that should be provided to young people on the potential harms associated with vaping. These are as follows:

- **nicotine is addictive and toxic** – whether it is ingested as smoke or a vapour it is still a dangerous substance and should be avoided if at all possible
- **products contained in e-cigarettes are not regulated** and there is no way of knowing what you are actually inhaling in the vapour. One study found that the devices have more formaldehyde, a carcinogen, than traditional cigarettes
- **e-cigarette use is likely to lead to eventual smoking of traditional cigarettes.** A recent study found that even though they are often marketed as way to help people quit smoking, the devices are more likely to promote nicotine use and act as a 'gateway' to tobacco use
- **e-cigarettes do not produce 'harmless water vapour'** and can be a source of indoor air pollution. In 2014 the World Health Organization (WHO) called for their use to be banned in public places and workplaces as there was evidence that they increased the levels of toxins and nicotine in the air adversely affecting those around them
- **lung damage and disease:** EVALI (e-cigarette or vaping product-use associated lung injury) is a lung disease that has been identified in patients who vape. Symptoms include cough, chest pain, shortness of breath and fatigue, ranging from minor illness to death. Research is continuing to identify the role vaping plays in this newly isolated condition. In the US alone there have been thousands of cases reported and several deaths attributed to EVALI

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- **e-cigarette battery failure can result in explosions and burn injuries:** Although these types of injuries are thought to be rare, recent research suggests that occurrence is higher than previously thought and regulation is required to ensure safety

One of the greatest risks associated with the use of tobacco is the smoke produced by burning. This smoke contains many dangerous chemicals. E-cigarettes do not produce the tar produced by regular cigarette smoking, which is the main cause of lung cancer. Hazardous substances have been found in e-cigarette liquids as well as in the vapour produced by e-cigarettes, these include formaldehyde, acetaldehyde and acrolein, which are known to cause cancer.

Due to a lack of regulation in the industry, assessing the safety of e-cigarettes and e-liquids can be difficult. Some of the issues include:

- the wide variety of devices and liquids sold
- incomplete or incorrect labelling
- lack of longitudinal study data to assess long-term harms

In the US there have been cases of a lung disease that has been associated with vaping. In 2019, thirty-nine people died and more than 2000 people developed serious lung damage due to a poisoning outbreak that occurred that was linked to the use of vaping devices. This condition has been named EVALI (e-cigarette or vaping product use associated lung injury) and has been recently linked to vitamin E acetate, an ingredient which is added to illicit cannabis vaping liquids. EVALI has been more prominent in the US where the vaping of THC is more common, further strengthening the evidence that it is caused by an additive in the THC liquid. EVALI is characterised as a form of acute poisoning, rather than a chronic condition that has developed from vaping over many years. Although research is continuing, it appears that a chemical formed from the vitamin E acetate found in illicit liquids is causing the toxicity that leads to EVALI. It appears unlikely that commercially produced e-liquids are the cause of EVALI.

Even though they are heavily promoted as a safe and effective way of quitting smoking, currently there is insufficient evidence to promote the use of e-cigarettes for smoking cessation. A recent scientific review of the evidence found that *“health*

claims and claims of efficacy for quitting smoking are unsupported by the scientific evidence to date” (Grana, Benowitz & Glantz, 2014). The authors also suggested to medical practitioners that if a patient wants to use them to help quit, they should be informed that *“the products are unregulated, contain toxic chemicals and have not been proven as cessation devices.”*

In Australia, in order to sell a product that is claimed to help people quit smoking this claim must be approved by the Therapeutic Goods Administration (TGA). The TGA has not approved any e-cigarettes for sale to help people quit smoking.

Are e-cigarettes legal in Australia?

Issues around the legality of e-cigarettes in Australia continues to be complex, mainly due to some devices containing or using nicotine while others do not.

In Australia it is illegal to buy or sell nicotine for use in e-cigarettes. Nicotine is classified as a ‘Schedule 7- Dangerous Poison’ under the Commonwealth Poisons Standard and any devices containing the drug are not able to be imported, sold or used. They are able to be imported, however, for personal therapeutic use with a prescription in some jurisdictions but this may be complicated as the products have not been approved by the Therapeutic Goods Administration (TGA). In addition, in all states and territories, it is illegal to:

- use e-cigarettes in areas where smoking is banned
- advertise, promote or display e-cigarettes at retailer outlets
- to sell e-cigarettes to people under 18 years

E-cigarettes that do not contain nicotine are legal for use by adults in all states and territories. The exception to this is Western Australia, where although use is not illegal, the sale of anything that resembles a tobacco product is. This means whilst not illegal for an adult to use one, purchasing the products may be difficult.

For the most up-to-date information on the legal status of these products in your jurisdiction, please go to the following link – [Legal status of electronic cigarettes in Australia. Information Sheet](#) or contact your local Cancer Council or Quit service.

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Implications for health teachers

In an already crowded curriculum it can be difficult for a health teacher to cover all topics effectively and provide up-to-date, accurate and credible information. When it comes to tobacco prevention, novel ways of smoking such as shisha and the introduction of e-cigarettes set new challenges for health teachers. Ensuring that the issue of 'vaping' is discussed at the same time as traditional smoking, whether that be tobacco, cannabis or other products, will become increasingly important as the use of e-cigarettes becomes more popular and visible.

If this is to be done, teachers need to consider the following points around e-cigarettes and vaping should they be conducting any tobacco or smoking prevention activities in their classroom:

- E-cigarettes and the marketing around these products challenge some of our key tobacco prevention message, i.e., the anti-social nature of smoking and smoking is not glamorous
- Vaping may be 'safer' than smoking but not vaping at all is 'safer' than vaping
- We do not know enough about e-cigarettes to say that they are a safe alternative to cigarette smoking and there is evidence to indicate that they pose a potential health hazard not only to the user but to others around them
- The unregulated nature of some e-liquids that can be bought online pose a risk for poisonings that can lead to lung damage. It is important to remember that recent deaths have been associated with contaminated product rather than the act of vaping itself

Resources

What are we vaping?: An American resource that focuses on what chemicals can be found in e-cigarette vapour, i.e., it is not simply 'harmless water vapour'. It comes with a great downloadable brochure that summarises the contents of the site that could be really useful

E-cigarettes and Nicotine Containing Products (NCPs): This comes from the UK-based Alcohol and Drug Education and Prevention Information Service

(ADEPIS) and provides a simple PPT presentation on the issue designed, as well as a [PDF bulletin](#) that examines how schools should deal with e-cigarettes, in terms of both the development of policies and procedures, as well as questions about how the topic should be dealt with in the curriculum

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