

E-cigarettes. Threat or opportunity?

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I'd like to introduce Peter, who is 41 years. Peter lives alone and suffers from schizophrenia. When I met him 18 months ago, he smoked 40-50 cigarettes a day. Peter was receiving the Disability Support Pension, about \$400 per week and was spending about \$230 per week on smoking. Peter had tried repeatedly to quit using all the standard treatments. He had quit for short periods, but always relapsed with stress.



He told me, 'Smokes have been my best friend since the age of 15. I always turn to them when times are bad'

This presentation is about whether we should allow smokers like Peter to switch to an electronic cigarette (e-cigarette) or should we leave them to continue to smoke? I'll come back to Peter later.

The controversy

E-cigarettes are very controversial have divided the public health community. Many public health experts think that they will act as a gateway to smoking for young people, will undermine tobacco control and are harmful to health. On the other hand, others think they have the potential to save millions of lives.

In this presentation, I will discuss what e-cigarettes are, their role in tobacco harm reduction, the evidence for using them, the arguments against their use, and I'll try to explain why experts can't agree. I'll finish by making some policy recommendations.

Background

Firstly, a little background about smoking. Smoking is still the leading preventable cause of death and illness in Australia and kills 15,500 people per year. It's hard to get your head around that number...but it is the equivalent of a jumbo jet crashing every week.



Nearly 3 million Australians still smoke and up to 2 in 3 of these will die prematurely from a smoking-related disease. Smokers live on average 10 years less than non-smokers. Most of the burden of ill health falls on the most disadvantaged people like Peter who have the highest smoking rates and most difficulty quitting.

Smoking is the most powerful addiction of all drugs. Most smokers try and fail repeatedly to quit. 40% try to quit at least once a year. About 40% of smokers are never able to escape the addiction.

In Australia, adult smoking rates have not fallen over the last 3 years **for the first time ever** in spite of plain packaging and the highest cigarette prices in the world. We clearly need new and innovative ideas to help these smokers.

Electronic cigarettes

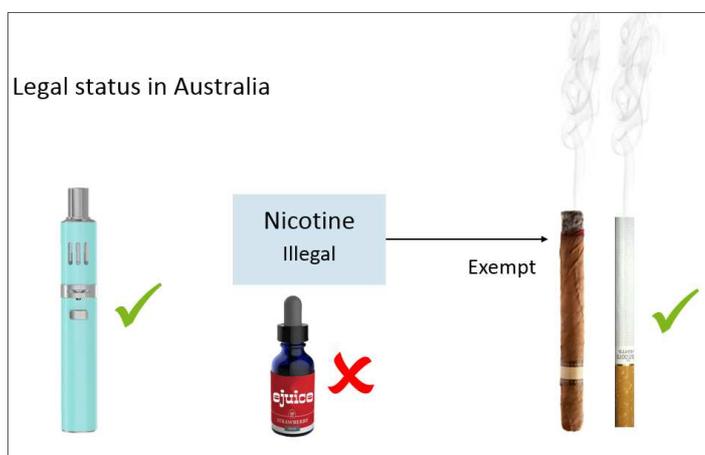
Electronic cigarettes consist of a battery (usually rechargeable), a heating element and a tank containing 'e-liquid', which consists of nicotine (usually) and flavourings dissolved in propylene glycol and vegetable glycerine. When the user breathes in, the heating element switches on and heats the liquid into an aerosol which the user inhales. This is then exhaled as a visible cloud. Essentially, they simulate smoking:

- They deliver the nicotine smokers are addicted to
- And they replicate the behaviour of smoking - the hand to mouth ritual, the inhalation of aerosol, exhaling the visible cloud and the 'throat hit'.

Many people continue to use e-cigarettes as a long-term alternative to prevent relapse to smoking, others use them briefly as an aid to quitting smoking.

In Australia, it is legal to possess an e-cigarette, but it is an offence to use or possess nicotine without an authority, such as a prescription. On the other hand, nicotine in tobacco for smoking is specifically exempt from these rules and is widely available.

Surprisingly, there is almost universal opposition in Australia to e-cigarettes. They are opposed by all 9 health departments, peak medical bodies such as the National Health and Medical Research Council, public health organisations, such as the Cancer Council and Heart Foundation and medical associations such as the AMA.



However, there is currently a parliamentary inquiry under way and a Senate inquiry is about to begin shortly to review Australia's policy.

On this issue, Australia is increasingly out-of-step with other affluent countries which we normally compare ourselves to. E-cigarettes are legal in the United Kingdom, United States and European Union. They are currently being legalised in Canada and New Zealand.

Tobacco Harm reduction

I'd like to say a few words about a tobacco control strategy called tobacco harm reduction. With traditional tobacco control, smokers are simply expected to quit. However, a large proportion of smokers are unable or unwilling to do so and remain at high risk from their smoking. Tobacco harm reduction involves accepting that these smokers can't quit and trying to reduce the harm from their habit. This involves switching from deadly combustible tobacco to a lower risk alternative that still delivers nicotine, but without the toxic chemicals that cause most of the harm.

Although nicotine is the main addictive chemical in tobacco, it is relatively harmless in the doses used in vaping, except in pregnancy. It does not cause cancer, lung disease or heart disease. In fact, nicotine has many positive effects which benefit users, for example it improves memory, attention, concentration, helps with weight control and improves a number of health conditions such as ADHD and Parkinson's disease.

Tobacco harm reduction is no different to harm reduction strategies used successfully in other fields, such as long-term methadone for heroin users, clean needles and syringes to reduce the risk of HIV/AIDS in drug users and seat belts.

The evidence

I'd now like to look at the evidence for using e-cigarettes. Are they effective as a substitute for smoking and are they safe?

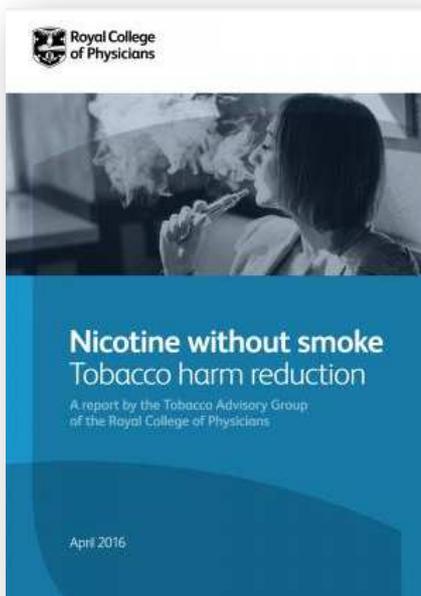
1. Effectiveness

It is now clear that e-cigarettes are an effective aid for helping smokers quit tobacco. Millions of people have now quit smoking using e-cigarettes. For example, in the European Union over 6 million smokers reported having quit using an e-cigarette in 2014. In the UK, 1.5 million former smokers are now vaping. Another 800,000 ex-smokers have quit smoking and vaping altogether.

Clinical trials of early e-cigarette models found that they were at least as effective as nicotine replacement therapy, such as patches and gum. More advanced devices which deliver higher nicotine levels are more effective.

E-cigarettes are the **most popular quitting aid** in the UK, as they are in the US

And they are saving lives. Two recent studies using very conservative estimates calculated that between 16,000-22,000 smokers had quit for the long-term in one year in England who would not have quit if e-cigarettes were not available. This equates to 10,000 to 15,000 lives saved each year.



Safety

The scientific consensus is that e-cigarettes are dramatically safer than smoking. The Royal College of Physicians and Public Health England have estimated that they are 95% less harmful. That's 95% less cancer, heart disease and respiratory illness in smokers who switch to vaping.

This is not surprising as almost all of the harm from smoking is from the tars, carbon monoxide and other chemicals caused by combustion. The vast majority of the 7,000 toxins in tobacco smoke are absent from e-cigarette vapour or are mostly present at trace levels.

Not everyone agrees with the exact figure, but even the harshest critics accept they are substantially safer than smoking.

Studies have shown that when smokers switch to e-cigs, health improves: asthma and lung function get better, fewer respiratory infections, blood pressure drops and they feel much better.

E-cigarettes are not completely safe. Nothing ever is. There are low levels of some chemicals and flavourings which have not been fully

investigated. However, e-cigarettes are used **almost exclusively by smokers**, so any risk needs to be compared to the risk from smoking which kills up to two in three long-term users.

The risk of exposure to bystanders has also been judged as negligible, unlike secondhand smoke.

Arguments against e-cigarettes

E-cigarette opponents have raised a range of concerns about vaping. These include

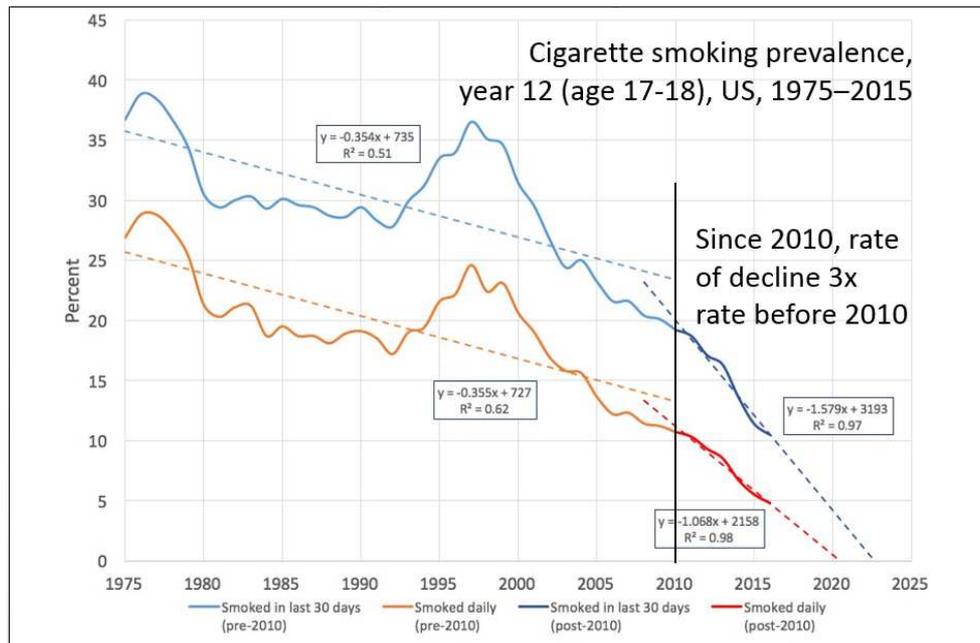
- E-cigarettes are a gateway to smoking for children and non-smoking adults.
- Undermine tobacco control and increase smoking
- Unknown long-term health risks
- Health risks generally
- The role of Big Tobacco

1. Gateway to smoking

It would be a serious concern if vaping was leading more young people to smoke. Many studies have shown that kids who try vaping are more likely to try smoking, but there is no evidence of cause and effect. In fact, the evidence suggests the opposite, that vaping is replacing—rather than encouraging—smoking of tobacco cigarettes among young people.

As vaping rates have been increasing, smoking rates are declining rapidly in young people and are at record low levels in countries where e-cigarettes are readily available.

In the US, for example, the annual Monitoring the Future study by the National Institute of Drug Abuse found that the rate of decline in cigarette smoking in 12th grade high school students has been three times faster since 2010 when e-cigarettes first became widely available, than the long-running trend over the preceding 35 years. It is more likely that e-cigarettes are a gateway out of smoking.



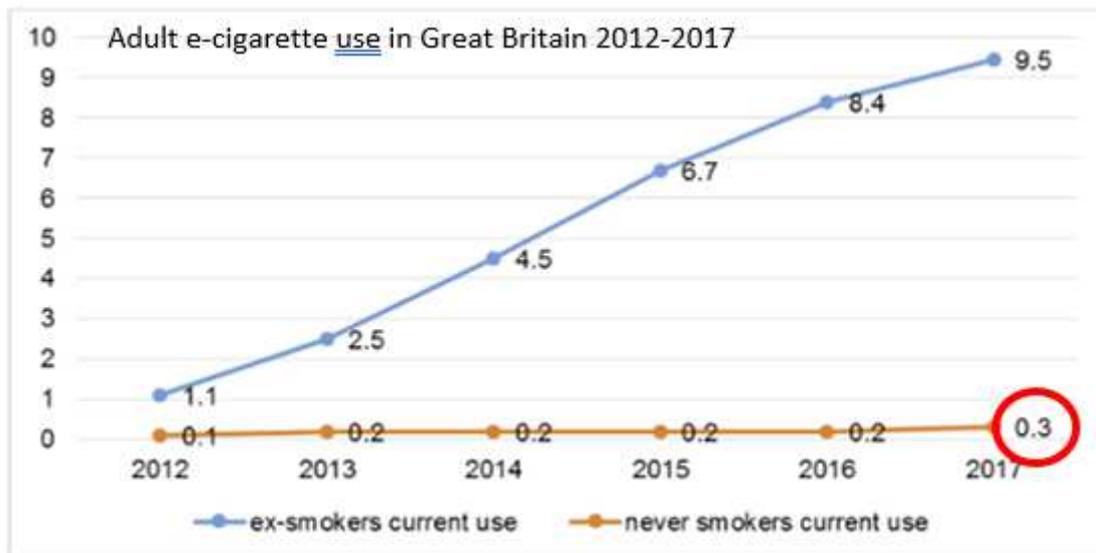
Four studies from the UK show that about 10% of kids in the UK have experimented with e-cigarettes at some time. It is a fun thing to do and kids try it for a while and then stop, and the majority do not use nicotine. Experimentation is much less common in kids who don't already smoke (about 3%). Importantly, **regular use (ie monthly or more) in young people who have not previously smoked is rare** - about 0.2% or 2 in 1,000 young people, and there is no evidence of progression to smoking.

2. What about adult non-smokers?

Regular e-cigarettes use by adults is confined almost exclusively to current or ex-smokers. Use amongst adults who have never been regular smokers is very rare.

For example, in the US national survey, 0.4% of adults who had never smoked were current users, and only 1 in 4 of those vaped daily.

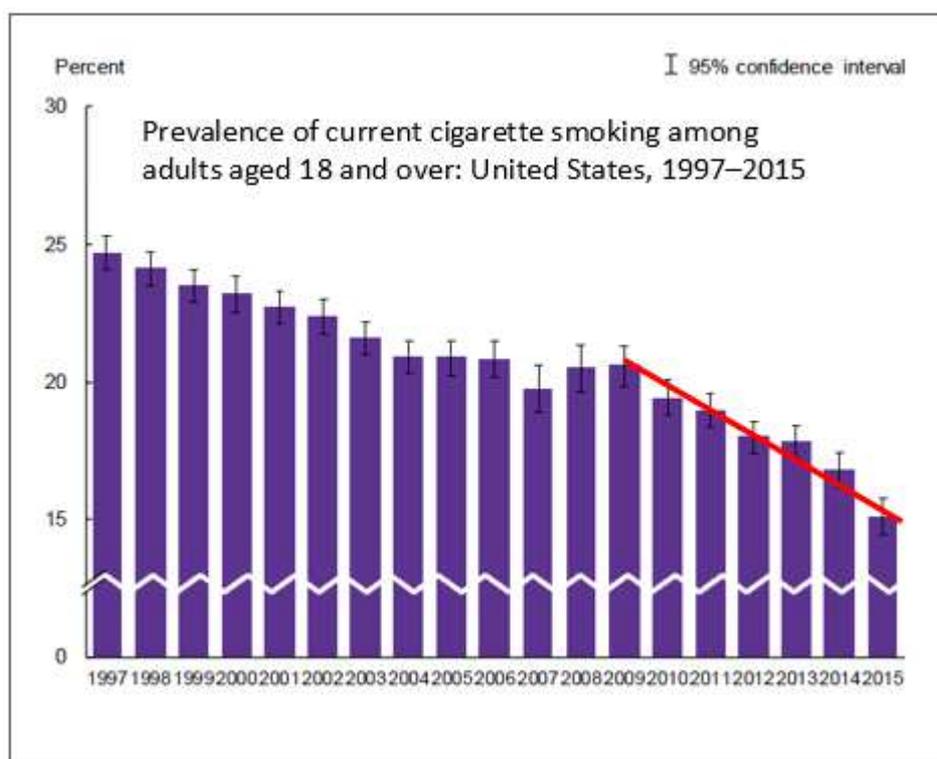
Similarly, In Great Britain the annual survey by Action on Smoking and Health found that only 0.3% of adults who have never smoked were using an e-cigarette in 2017.



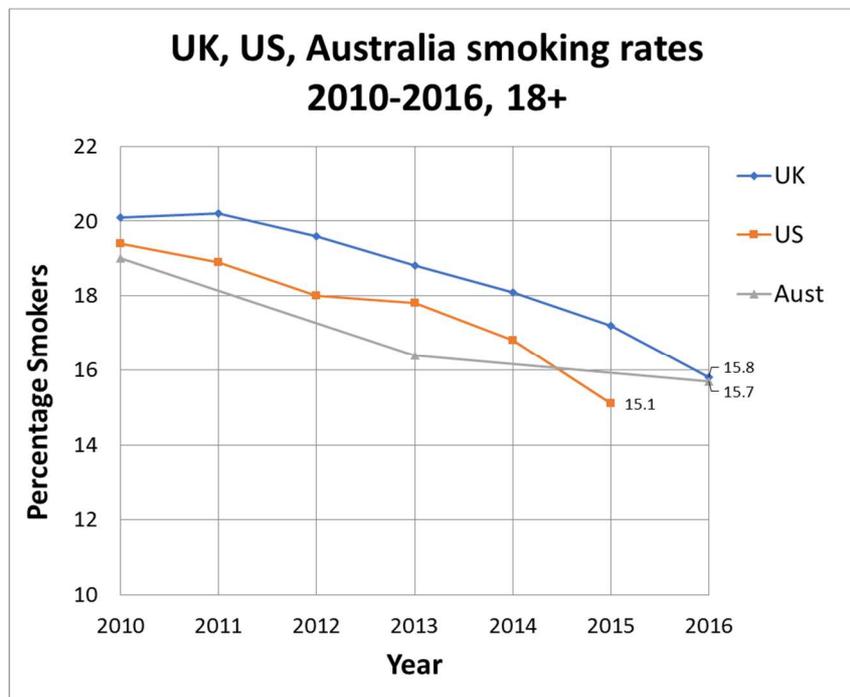
3. Undermining tobacco control

Opponents of e-cigarettes say they will 'make smoking appear socially acceptable again' and will lead to more smoking, not less. In fact, the opposite is true. Where e-cigarettes are widely available, the smoking rates have fallen to record lows.

For example, in the US, the annual National Health Interview Survey by the CDC shows that smoking rates are falling **faster than ever** since e-cigarettes became popular in around 2010. Previous to that, smoking rates had flat-lined for 6 years.



If you compare adult smoking rates in the US, the UK and Australia since 2010, you can see that the smoking rate is falling faster in the other countries where e-cigarettes are legally and widely used compared to Australia. It is very likely that e-cigarettes are a contributing factor in this rapid decline.



4. Long-term safety

Some people argue that we should ban e-cigarettes until long-term safety data is available. By this impossible standard, no new drug or treatment would ever be allowed until 20 or 30 years of continuous testing. While we do not yet know everything about these products, we know enough from research and 10 years' experience to be sure they are much safer than smoking. Given the huge potential to save lives, we should act on what we know now, not be paralysed by unrealistic expectations

Controversy

So why can't the experts agree on e-cigarettes? It seems it's not about the evidence, but about ideology and values. A lot of resistance to e-cigarettes is based on the following:

- Entrenched ideology. The ideological framework of tobacco control for the last 50 years has been the complete elimination of addiction and nicotine. 'Anything that looks like a cigarette, is used like a cigarette, delivers nicotine could not possibly be a good thing'. This framework does not include harm reduction.
- Big Tobacco: The tobacco industry has behaved terribly in the past. Some believe that 'anything they are involved with must be bad'.
- Core values and beliefs. Some people believe smoking is sinful and harm reduction implies acceptance of what should just be eliminated.
- Nicotine: Nicotine has been demonised. There is a belief that it must be bad because of its association with tobacco and its role in addiction, and should be entirely eliminated.
- Resistance to change the status quo even when the evidence changes

Entrenched views can be hard to change. People often interpret or select the evidence to support their deeply held beliefs and ideological views. For some people, no amount of evidence will be enough because the barrier is in their core values. This brings to mind a famous quote by the economist John Maynard Keynes, who said:

"When the facts change, I change my mind. What do you do sir?"

We need to look objectively and dispassionately at the evidence and be willing to change our minds

Policy approaches

Now I'd like to discuss **policy approaches** to e-cigarettes, which should be based on evidence, not ideology.

And they should be ethical. It is unethical and irrational to allow the widespread sale of tobacco cigarettes and ban a much less harmful alternative which smokers are using to reduce their harm from smoking.

1. Low concentrations of nicotine for tobacco harm reduction should be made available for Australian smokers.
2. E-cigarettes are consumer products designed to replace an existing much more harmful consumer product and should be regulated by existing consumer laws. They do not contain tobacco and should not be regulated as tobacco products which require stricter controls.

The overall regulation of e-cigarettes should maximise the potential benefits of these products for adult smokers while minimising any negative effects to others. This involves two main strategies

1. Ensuring safety and encouraging smokers to switch to e-cigarettes

Set standards for safety and quality, labelling, appropriate safety warnings
Allow responsible advertising to adult smokers to raise awareness
Allow retail display to facilitate access

2. Minimise potential risks

Ban sales to minors
Some restrictions on vaping in indoor spaces
Bans on vaping in cars with children
Child-resistant containers

Peter

Peter commenced using an e-cigarette in July 2016 and quit smoking immediately, at no cost to the government. He had one brief lapse in October when he was unable to get his nicotine e-liquid supply, but he has been abstinent ever since, 11 months altogether.

He has more energy, is more motivated, exercising more, feeling healthier. He has **saved \$9,600, so he has less financial stress**, and is spending more on food, hobbies and paying off debts

He said to me

- 'I prefer the e-cigarette to smoking'
- 'The e-cigarette helps me manage the bad days'
- 'I never thought I'd be able to quit. It's the best thing I've ever done'

I'd like to end with a quote from the UK Royal College of Physicians which did a comprehensive review of all the evidence last year. Their conclusion was:

'in the interests of public health, it is important to promote the use of e-cigarettes ... as widely as possible as a substitute for smoking'

This should also be our goal in Australia.